THE BRICKBUILDER

VOLUME XVIII APRIL 1909 NUMBER 4

PUBLISHED MONTHLY BY ROGERS & MANSON

85 Water Street - - - Boston, Massachusetts

Entered at the Boston, Mass., Post Office as Second-Class Mail Matter, March 12, 1892.

Copyright, 1909, by ROGERS & MANSON

Subscription price, mailed flat to subscribers in the United States, Insular Possessions and Cuba . . . . . $5.00 per year
Single numbers . . . . . 50 cents
Subscription price, mailed flat to subscribers in Canada . . . . . $5.50 per year
To Foreign Countries in the Postal Union . . . . . $6.00 per year

SUBSCRIPTIONS PAYABLE IN ADVANCE

For sale by all news dealers in the United States and Canada. Trade supplied by the American News Company and its branches.

ADVERTISING

Advertisers are classified and arranged in the following order:

	PAGE		PAGE
Agencies — Clay Products	II	Brick Enameled	III and IV
Architectural Faience	II	Brick Waterproofing	IV
" Terra Cotta	II and III	Fireproofing	IV
Brick	III	Roofing Tile	IV

Advertisements will be printed on cover pages only.

CONTENTS

PLATE ILLUSTRATIONS

FROM WORK BY

CASS GILBERT; PELL & CORBETT; POND & POND; RIPLEY & RUSSELL; STRATTON & BALDWIN; HORACE TRUMBAUER.

LETTERPRESS

PAGE

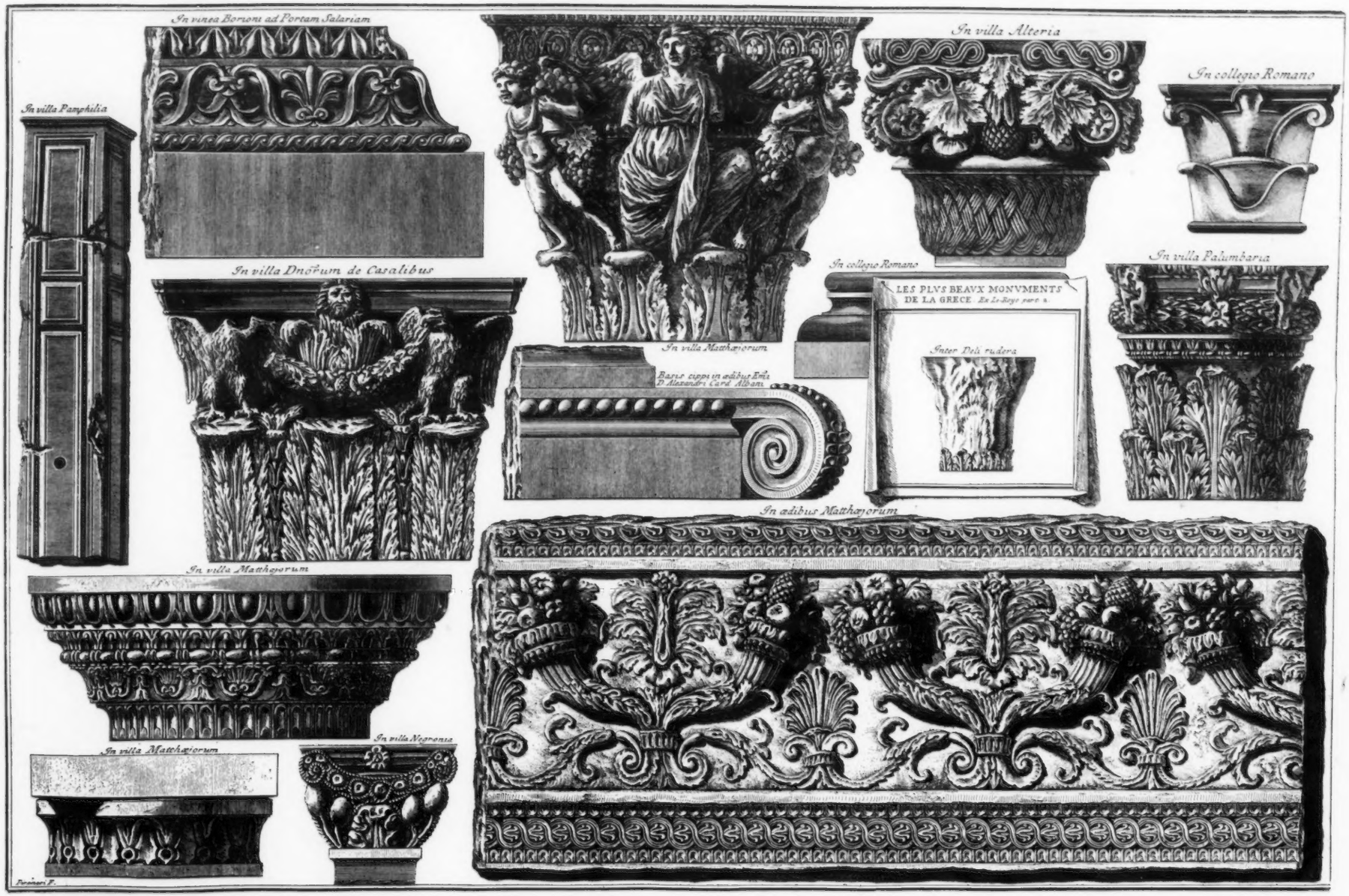
CAPITALS AND OTHER ARCHITECTURAL DETAILS FROM ANCIENT ROMAN BUILDINGS.....Frontispiece

GYMNASIUMS — THEIR PLAN AND EQUIPMENT — III.....*M. B. Reach* 67

THE HOUSING PROBLEM — II.....*George B. Ford* 76

TERRA COTTA HOLLOW TILES FOR WALLS OF HOUSES.....*C. H. Hughes* 80

EDITORIAL COMMENT AND MISCELLANY..... 83


In vinea Borioni ad Portam Salariam
In villa Pamphilia
In villa Dnorum de Casalibus
In villa Matthæiorum
Basis cippi in ædibus Exta D Alexandri Card Albani
In villa Alteria
In collegio Romano
LES PLVS BEAVX MONVMENTS DE LA GRECE Ex Le-Roy part. 2.
Inter Dels rudera
In villa Palumbaria
In ædibus Matthæiorum
In villa Matthæiorum
In villa Matthæiorum
In villa Negronia
Perchaer F.

CAPITALS AND OTHER ARCHITECTURAL DETAILS FROM ANCIENT ROMAN BUILDINGS. GIOVANNI BATTISTA PIRANESI, DEL.

THE BRICKBVILDER

VOL. 18 NO. 4 DEVOTED TO THE INTERESTS OF ARCHITECTVRE IN MATERIALS OF CLAY APRIL 1909

Gymnasiums—Their Plan and Equipment—III.

BY M. B. REACH.

Gymnasiums for Armories.

GYMNASIUM work in the armory assumes a different character from similar work in educational institutions in that there is less trained, compulsory, or educational work and more individual or voluntary application. The gymnasium is recreative and looked upon as a social factor planned to further cement the purposes of the body organization—a club feature as it were. Consequently it is of secondary rather than primary consideration in the plans of the building. This is an era of physical upbuilding, however, and the work of the gymnasium pervades all organizations to greater or lesser degree, and the architect who knows his conditions will plan accordingly.

Where possible the gymnasium or recreative room should be separate from the main drill hall, which, at best, is ill adapted for apparatus work. A room of not less than 40 feet by 60 feet should be assigned for this purpose, and I recommend, without running track or gallery. If the building conditions will permit a separate room for hand ball it would be found most desirable. The end or side walls of the gymnasium could be designed for this purpose, but it would interfere with other work and play in that room, and a separate provision, therefore, for this popular game is advisable.

I do not know of any gymnasium that includes in its equipment a regulation hand ball court, which should be about 60 feet long, 24½ feet wide, and 35 feet high in the front, tapering down to 33 feet at the back wall. Most gymnasiums content themselves with the front wall. Where possible, however, the two side walls add materially to the science, pleasure, and sport of the game, and the majority of hand ball is probably played in a room not over 20 feet wide, 25 or 30 feet long, with a ceiling height of perhaps 15 or 16 feet.

The general specifications for the gymnasium room may be taken from the preceding instalments of this article.

Fig. 12 fairly represents a typical equipment, of which the following is a list:

Four triplicate pulley weights, two rowing attachments, two abdominal mat attachments, one wrist roll, one vaulting horse, one vaulting buck, one parallell bar, one low parallel bar, one horizontal and vaulting bar, one spring board, one pair jump standards, two jump boards, one inclined board, one adjustable ladder, six traveling rings, one pair flying rings, one trapeze, two climbing ropes, one climbing pole, one striking bag disc, one pair basket ball goals, mats, miscellaneous small and calisthenic apparatus.

Where it becomes absolutely necessary to use the main drill hall for gymnasium purpóses certain provisions should be made to care for types of overhead apparatus that can ill be spared from a needed equipment. Owing to the great height of the overhead truss work and also the usual arched construction, it proves an expensive operation for the gymnasium contractor to provide suitable supports, and when installed they are apt to look, as they are, after-thoughts that fit poorly in their environment.

As most armories, I believe, have a spectators' gallery this might be utilized to good advantage if suspended at proper height and made of ample width. As I write this it occurs to me that I have seen an armory with a wide gallery at one end, but whether of sufficient height for apparatus I do not recall. I would assume that a very considerable seating capacity was desirable and a wide gallery in itself of great utility. This would be enhanced where the hall was used for a gymnasium, if suspended 16 feet from the floor. For the best usage it should approximate 25 feet in width, although 5 feet less than this could be recommended as workable. A gallery of this description would well care for all needed suspended apparatus excepting the traveling rings, which advisedly should be suspended adjacent a side wall similar to arrangement shown in Fig. 13. This fixture could be supplied by the gymnasium outfitter in pipe construction or made part of the truss work plan.

Fig. 13 suggests an armory equipment following out the ideas outlined in the foregoing. The apparatus shown in this plan is generally covered by the list for Fig. 12. All apparatus on the floor is portable.

Gymnasiums for Clubs.

The average "club" gymnasium is generally found to be somewhat between the institutional class and that exemplified by the armory, with a leaning toward the latter. Class or educational work will be found to some extent with a regular physical director in charge. Group work, however, is irregular. The room is more recreative in character and the use by the individual subservient to his inclination. The equipment of apparatus will parallel that shown for the armory, with the addition of a few more wall pieces for class work.

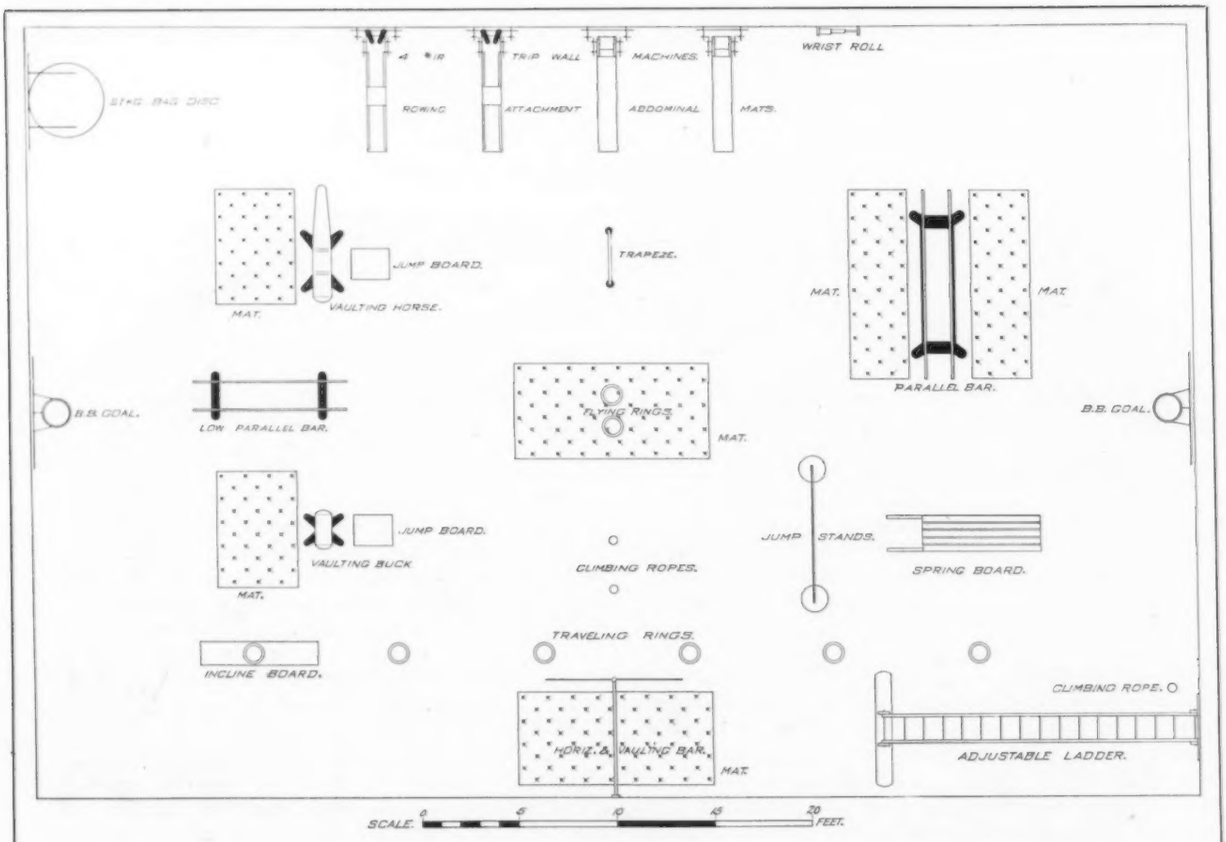

STKG. BAG DISC.
4 TRIP WALL MACHINES.
ROWING ATTACHMENT ABDOMINAL MATS.
WRIST ROLL
JUMP BOARD.
MAT.
VAULTING HORSE.
TRAPEZE.
MAT.
MAT.
PARALLEL BAR.
B.B. GOAL.
LOW PARALLEL BAR.
FLYING RINGS.
MAT.
B.B. GOAL.
JUMP BOARD.
VAULTING BUCK.
MAT.
CLIMBING ROPES.
JUMP STANDS.
SPRING BOARD.
TRAVELING RINGS.
INCLINE BOARD.
CLIMBING ROPE.
HORIZ. & VAULT. BAR.
MAT.
ADJUSTABLE LADDER.
SCALE. 0 5 10 15 20 FEET.

FIG. 12.

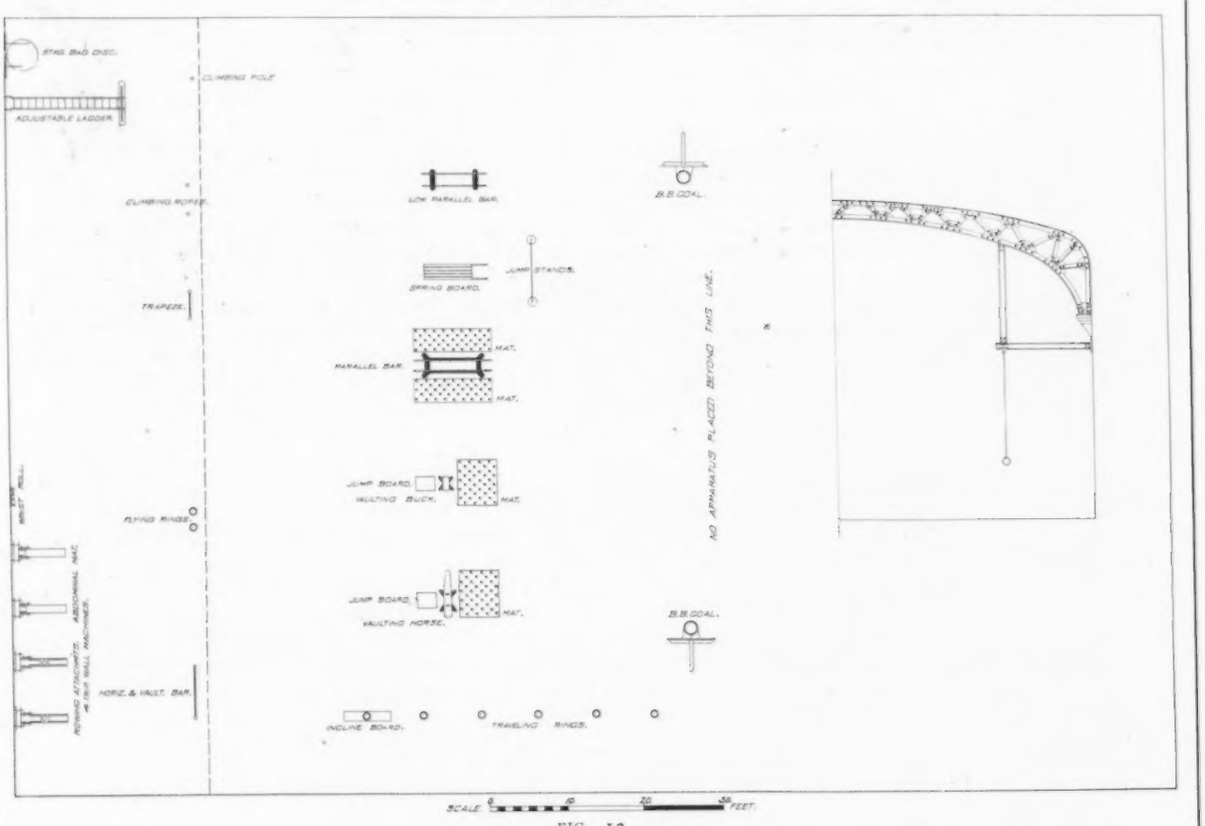
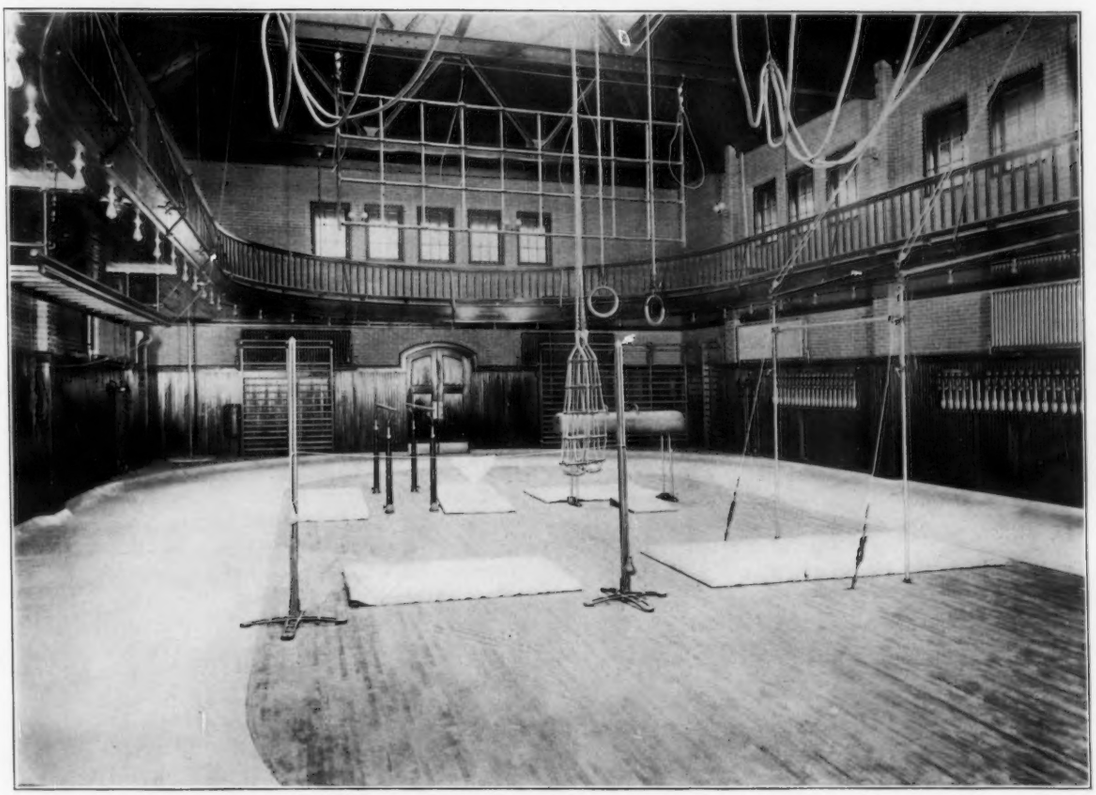

STKG. BAG DISC.
CLIMBING POLE
ADJUSTABLE LADDER
CLIMBING ROPES.
TRAPEZE.
FLYING RINGS
HORIZ. & VAULT. BAR.
INCLINE BOARD.
LOW PARALLEL BAR.
SPRING BOARD.
JUMP STANDS.
PARALLEL BAR.
MAT.
MAT.
JUMP BOARD.
VAULTING BUCK.
MAT.
JUMP BOARD.
VAULTING HORSE.
MAT.
TRAVELING RINGS.
B.B. GOAL.
B.B. GOAL.
NO APPARATUS PLACED BEYOND THIS LINE.
SCALE 0 10 20 30 FEET.

FIG. 13.



GYMNASIUM FOR THE WESTERN PENNSYLVANIA INSTITUTION FOR THE BLIND, PITTSBURG, PA.
Janssen & Abbott, Architects.

Other than in the design of a large athletic club I would recommend the elimination of a running track. A gallery might prove desirable at one end of the room, but this feature may depend upon the space available for gymnasium use. Except in the case of a very minor club I would suggest that there be no curtailment upon a clear space of 40 feet by 60 feet.

Adjoining the gymnasium room there should be courts for hand ball and a fair sized room for boxing. Some clubs provide a separate room for wrestling, and as this art receives more or less attention, particularly in athletic clubs, no mistake would be made in suitable provisions for its indulgence. It is possible, however, to count a wrestling rug of 16 or 18 feet square a part of the gymnasium equipment, and a corner of the room set off for its use. This should only be tolerated in circumstances that provide ample room for the regular work of the gymnasium proper. The rug with mat underneath is cumbersome, heavy, and not easily moved, consequently may be considered as practically a permanent fixture in estimating the working capacity of the room. The proportion of space per capita, outlined in my first instalment, would probably hold good here. There is, however, the thought that those gymnasiums leaning more towards the recreative side will demand more space. Man in his play calls for more room than man in his work, and becomes more disgruntled if his needs are not reasonably fulfilled, particularly where he is paying for the purpose of playing. I have frequently heard criticisms from different members of clubs I have visited of inadequate facilities in one department or another, and up to a certain reasonable point such criticisms are justified. It is my opinion, however, that a gymnasium of 60 feet by 80 feet would prove ample accommodation for almost any club excepting the occasional and rare metropolitan athletic club. With 40 feet by 60 feet as the minimum and 60 feet by 80 feet as the maximum the problem of space is fairly well confined. In a gymnasium of the latter size the question of the track or gallery may be decided upon the merits of the individual case. I am showing no plans of equipment, owing to similarity of list already illustrated as typical of an armory gymnasium. There would be an increased number of chest machines and possibly some bar stalls.

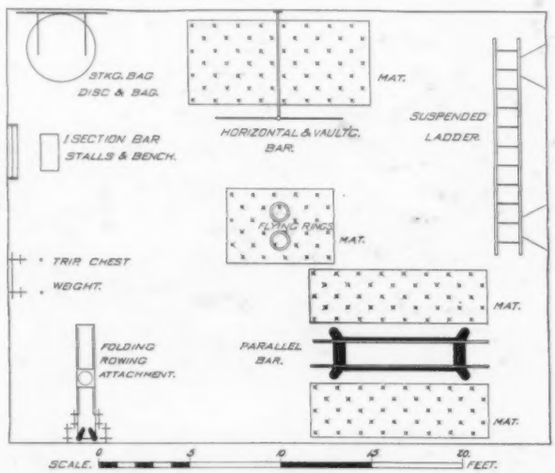


FIG. 14.

The Private Gymnasium.

The private gymnasium, which may be accepted as meaning that in a home, can hardly be treated by rule. The individual and conditions offer too great a possibility of variety, no two cases being alike. Briefly, a very complete home equipment can be installed in a room from 20 feet to 25 feet wide and 30 feet long. The ceiling height may be 16 feet as the maximum and 14 feet as the minimum.

Fig. 14 shows a typical equipment of which the following is a list:

One triplicate chest weight, one section bar stalls and bench, one folding rowing attachment, one folding horizontal and vaulting bar, one parallel bar, one pair flying rings, one suspended ladder, one striking bag disc and bag, mats, medicine balls, and calisthenic apparatus.

Gymnasiums for Women.

As a manufacturer I particularly like to see a woman's gymnasium beautifully clear as to side walls and free from running tracks regardless the size of room. Some, if not the most prominent educators in women's gymnastics, hold a sustaining opinion in this question. I, therefore, feel safe in taking my stand that running tracks sacrifice more good than they accomplish under these conditions.

Practically all of our more prominent gymnasiums for women are equipped after what is known as the Swedish system. This calls for more overhead work than is usually installed under the American system, but requires no modification in the suggestions previously made as to truss construction. A running track projecting out into the room frequently cuts into a very much needed amount of space for overhead apparatus and further interferes with the most ideal arrangement in providing means for getting such apparatus out of the way. In the ordinary gymnasium there is not so much of it, and as a rule it is attached to hoists and pulled up against the ceiling. In the Swedish equipment there is apt to be a very considerable quantity of such apparatus (see Figs. 15 and 16) and the regular hoisting arrangement is both slow and difficult for a woman to handle. By way of illustration suppose we consider a gymnasium having fifteen climbing ropes. (They are apt to range from twelve to twenty in number.) If the ceiling were 20 feet high each rope would weigh approximately 16 pounds, and being hoisted in groups are heavy. The preferable arrangement is to suspend each rope from a traveling carrier overhead, the carriers being chained to each other the proper distance apart. One pull brings an entire nest of ropes into position, the guiding or pulling rope being wrapped around a wall cleat to hold them in place, and with equal ease they may all be pushed back flat against the wall and stored in limited space.

Other apparatus is also more or less detrimentally affected by the running track, according to type and use. A spectator's gallery at each end I consider advantageous in most institutions if the room is not too small, and even at times a gallery may be provided along one side. In

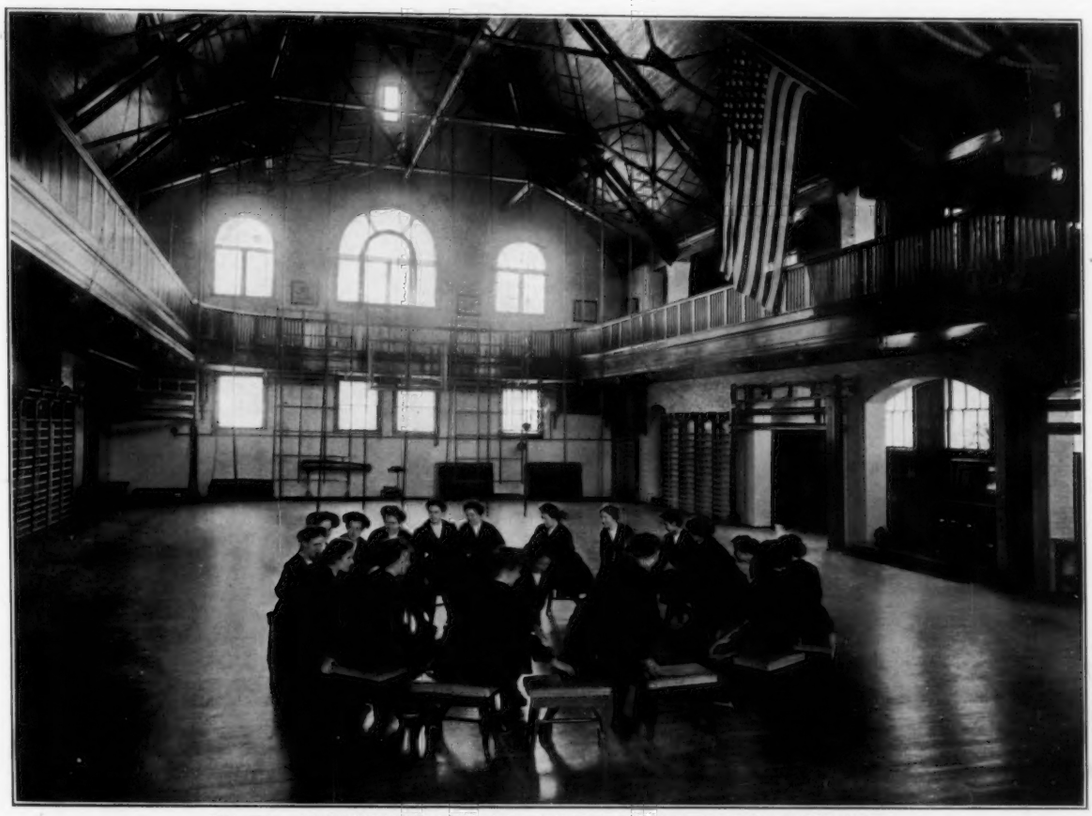


FIG. 15. GYMNASIUM FOR STATE NORMAL SCHOOL, BRIDGEWATER, MASS.

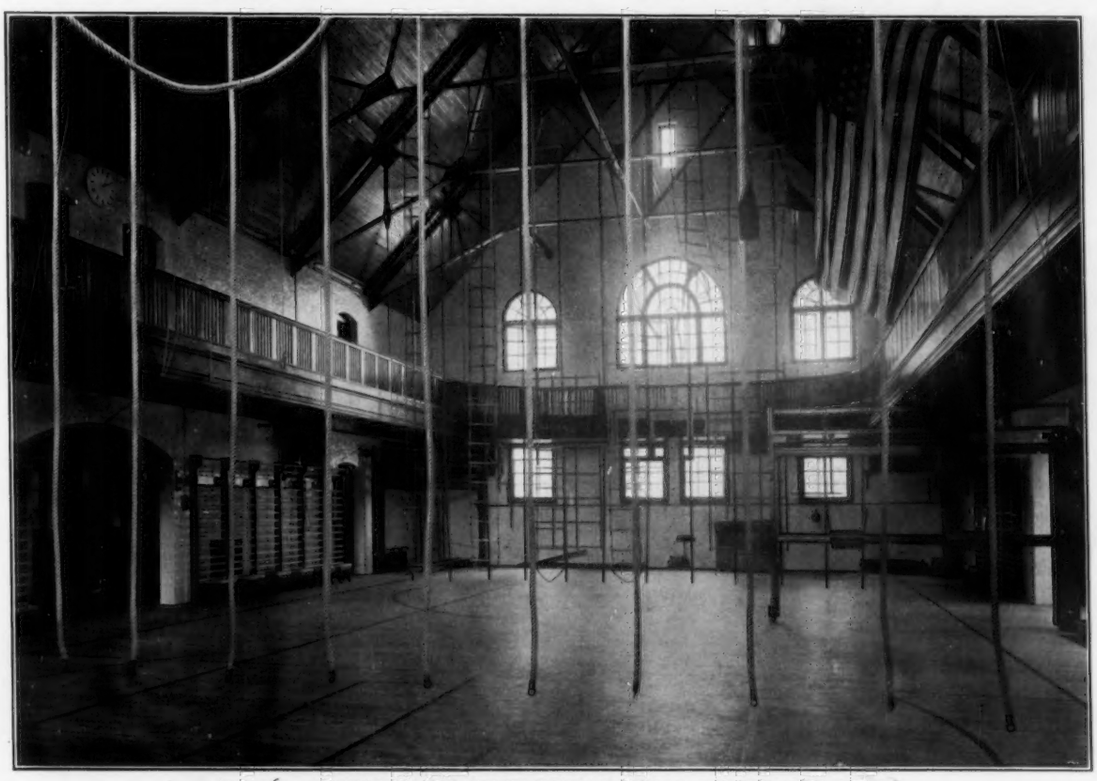
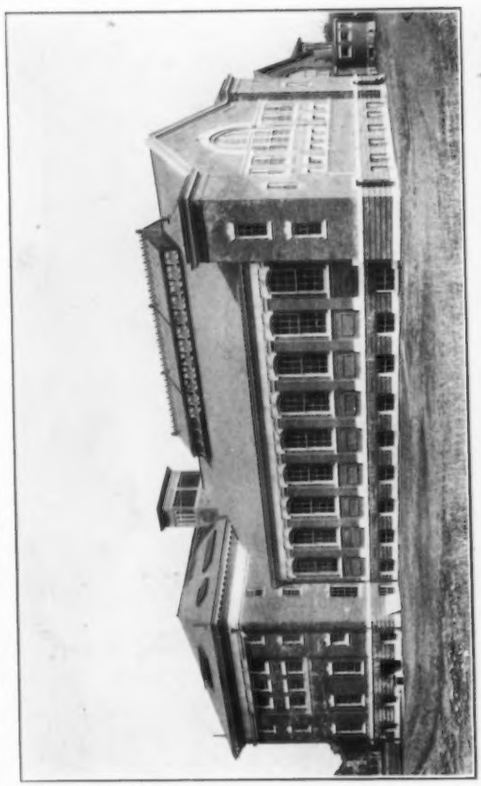
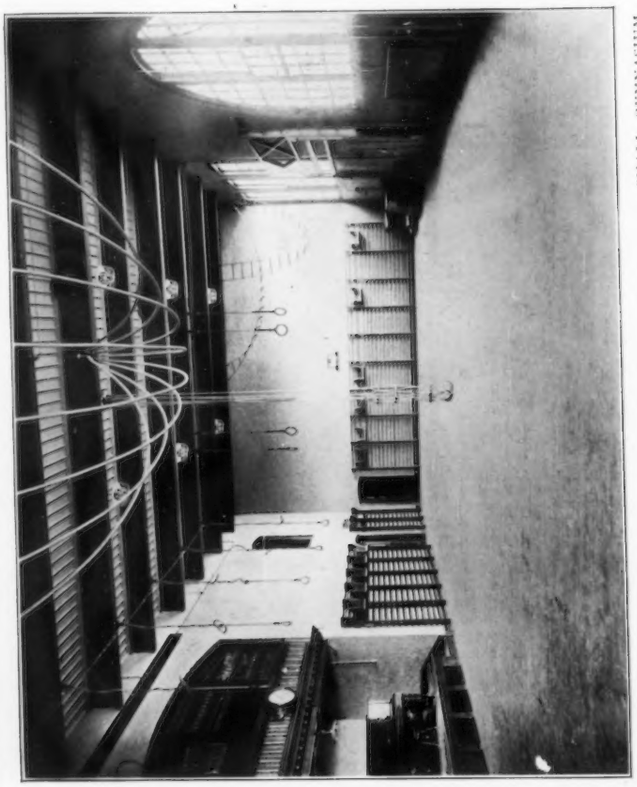
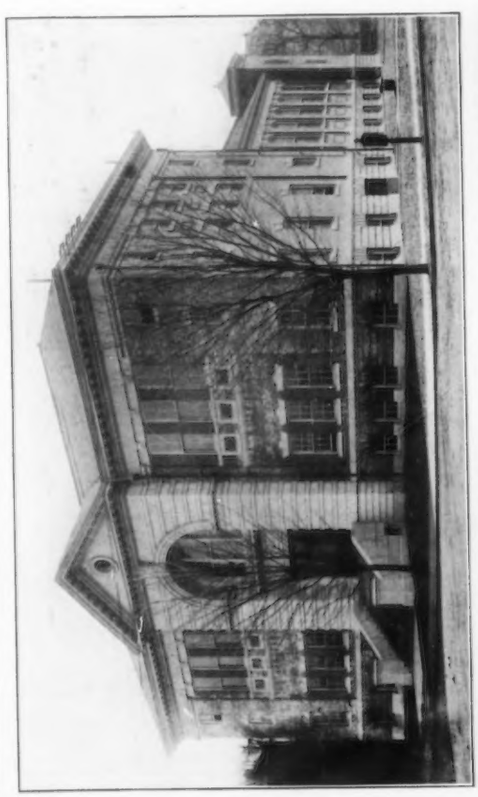


FIG. 16. GYMNASIUM FOR STATE NORMAL SCHOOL, BRIDGEWATER, MASS.
Hartwell, Richardson & Driver, Architects.





SMALL GYMNASIUM.



MAIN GYMNASIUM.

GYMNASIUM FOR THE TOWN OF BROOKLINE, MASS.
F. Joseph Untersee, Architect.

GYMNASIUM AT WOMEN'S COLLEGE, CLEVELAND, OHIO.
Hubbell & Benes, Architects.

GYMNASIUM FOR HEBREW ORPHAN ASYLUM, BALTIMORE, MD.
Parker, Thomas & Rice, Architects.

GYMNASIUM, UNIVERSITY SCHOOL FOR BOYS, BALTIMORE, MD.
Joseph Evans Sperry, Architect.

GYMNASIUM FOR STATE NORMAL SCHOOL, BRIDGEWATER, MASS.
Hartwell, Richardson & Driver, Architects.

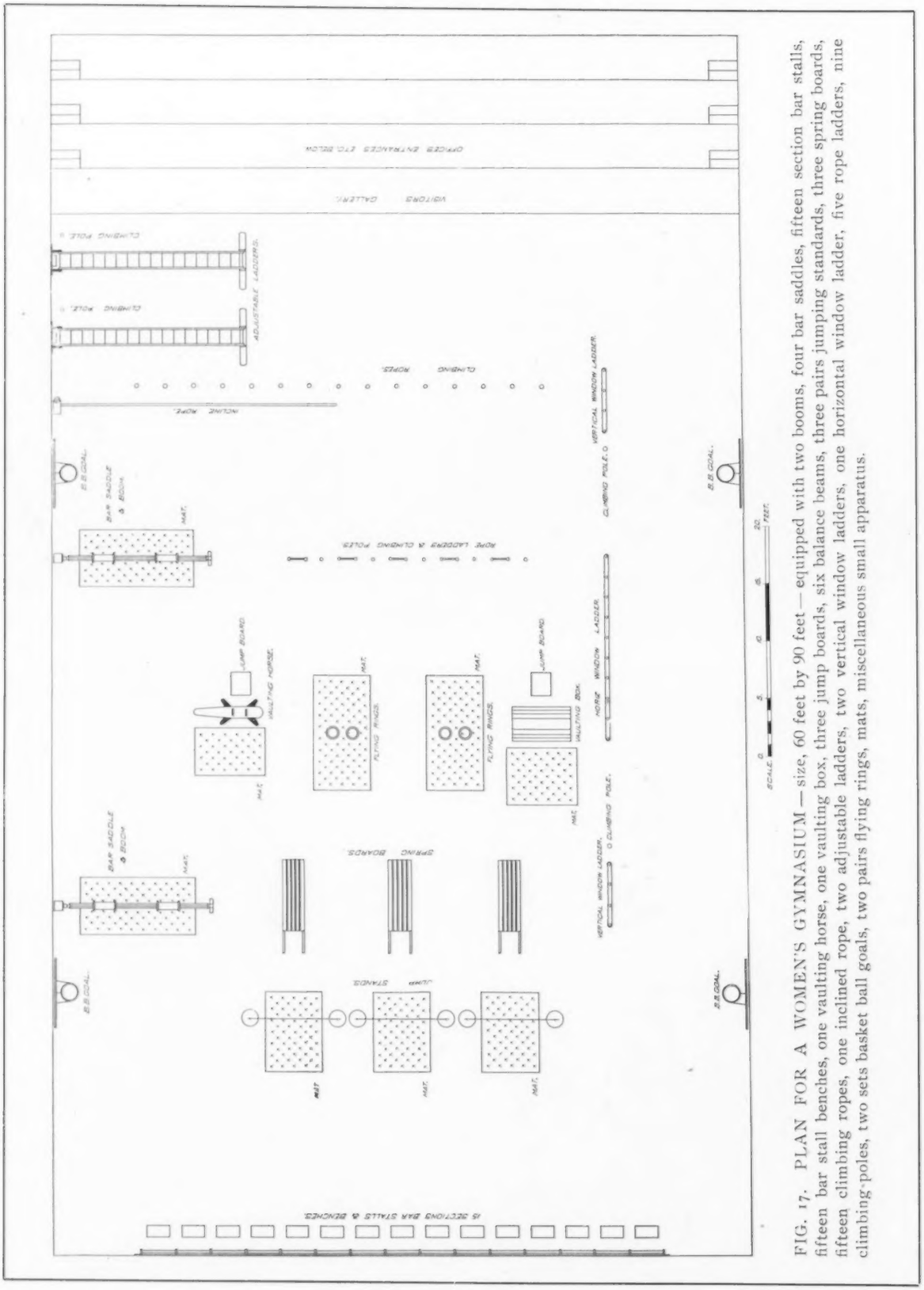
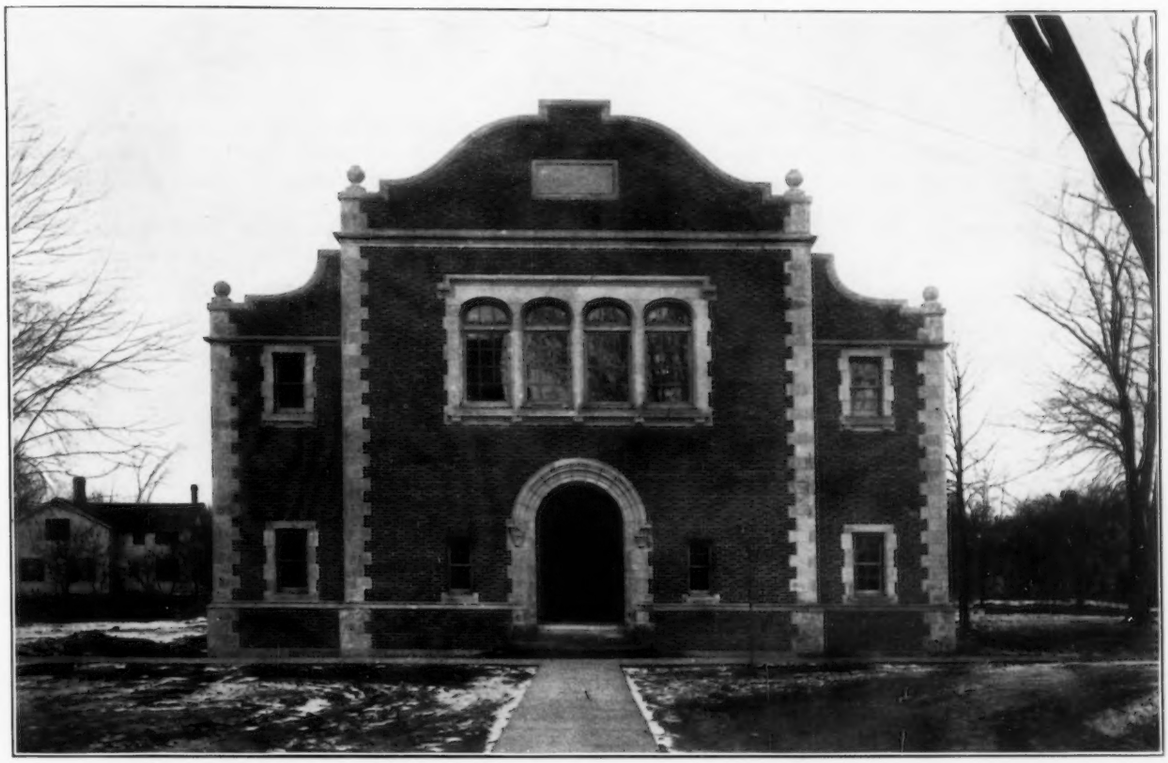
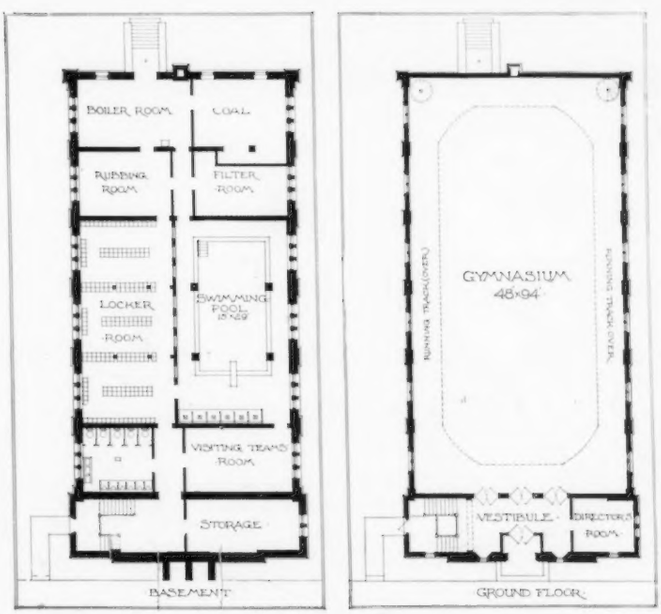


FIG. 17. PLAN FOR A WOMEN'S GYMNASIUM — size, 60 feet by 90 feet — equipped with two booms, four bar saddles, fifteen section bar stalls, fifteen bar stall benches, one vaulting horse, one vaulting box, three jump boards, six balance beams, three pairs jumping standards, three spring boards, fifteen climbing ropes, one inclined rope, two adjustable ladders, two vertical window ladders, one horizontal window ladder, five rope ladders, nine climbing-poles, two sets basket ball goals, two pairs flying rings, mats, miscellaneous small apparatus.



any event such galleries should not be less than 10 feet from the floor and preferably 12 feet.

It has always appealed to me as particularly good where the seating space in a gymnasium extends *back* from the wall line at about 12 or 15 feet up, and *over* the smaller rooms, in juxtaposition to the gymnasium, that require only about half the ceiling height — offices, examining rooms, dressing rooms, halls, etc. This may be done at either sides or ends and not interfere with the equipment in any way.



HOBART COLLEGE GYMNASIUM.
Arthur C. Nash, Architect.

The floor plan shown in Fig. 17 serves as a type for a women's gymnasium and equipment of which the following is a list:

Room 60 feet by 90 feet. Two booms, four bar saddles, fifteen sections bar stalls, fifteen bar stall benches, one vaulting horse, one vaulting box, three jump boards, six balance beams, three pairs jumping standards, three spring boards, fifteen climbing ropes, one inclined rope, two adjustable ladders, two vertical window ladders, one horizontal window ladder, five rope ladders, nine climbing poles, two sets basket ball goals, two pair flying rings, mats, miscellaneous small apparatus.

THE average American citizen loses nearly ten dollars a year by fire to one dollar lost by the average European. The nation, the state, and the municipality are partly to blame, but the real blame rests on the citizen himself. Six hundred and fifty thousand parcels of property burned and a fire loss of $2,500,000,000 is the record of fire damage in the United States for a period of twenty-one years. Of the property burned 170,948 were dwellings.

The Housing Problem—II.

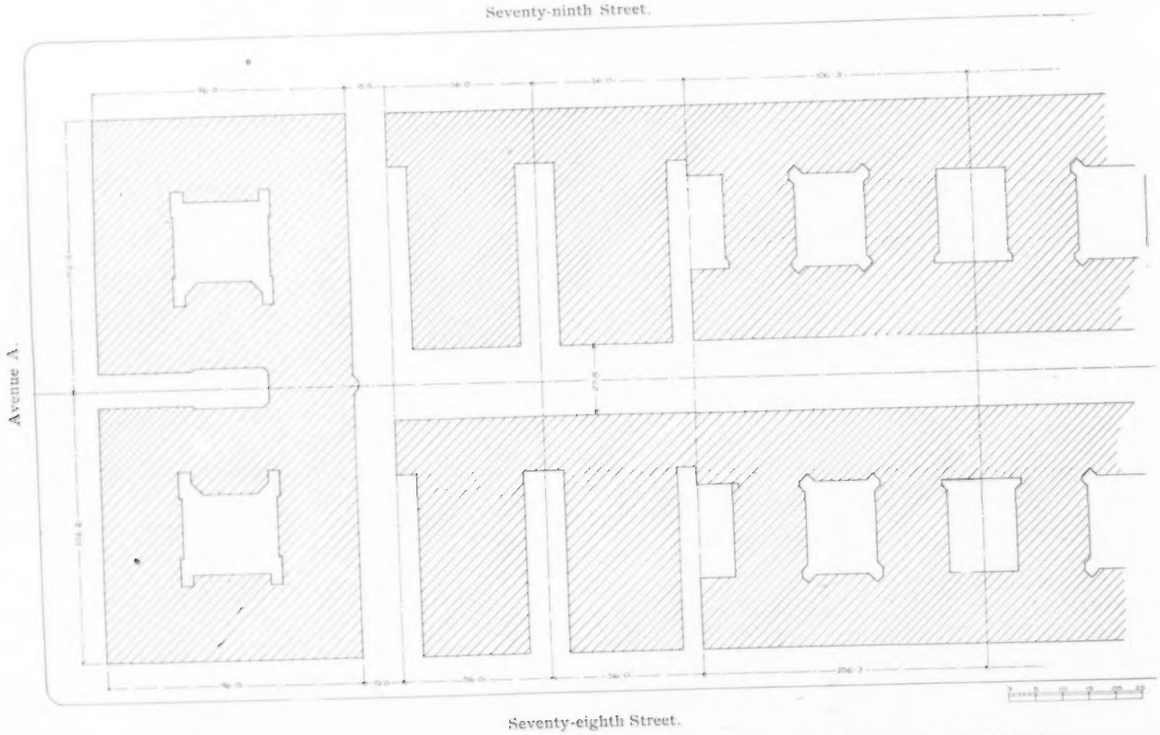
BY GEORGE B. FORD.

THERE are two points of view from which the design of model tenements may be considered. The first is the practical point of view. The second is the social or humanitarian point of view. With very few exceptions the plans of existing tenements have been considered only from the practical side. The arrangement that will give the maximum number of rooms per floor on a given sized lot has been reduced almost to a type. Many of these plans are marvels of ingenuity in giving the maximum rental space on a given lot. In every case the existing building codes have been stretched to their limit. The cost of construction through processes of elimination and experiment has been reduced almost to a minimum. It must be admitted that from the speculative standpoint the last word has been said in tenement design, but one cannot help questioning whether the builder of such tenements is really getting the maximum return possible for his money invested. The great question is: Should return on investment be solely a pecuniary one? This brings us to the other point of view, the social or humanitarian. This is the only side of the question on which progress can be made. How can we better living conditions? How can we improve family life? In searching for a point of departure in considering this subject I noticed in an 1895 Report of the United States Bureau of Labor, a report edited by Dr. E. R. L. Gould on the "Housing of the Working Classes," four requisites to model housing — "Privacy," "Health," "Safety," "Comfort."

PRIVACY may be treated as one of the features conducive to comfort, so that with these heads of Safety, Health, and Comfort we have a basis on which to commence studying the question.

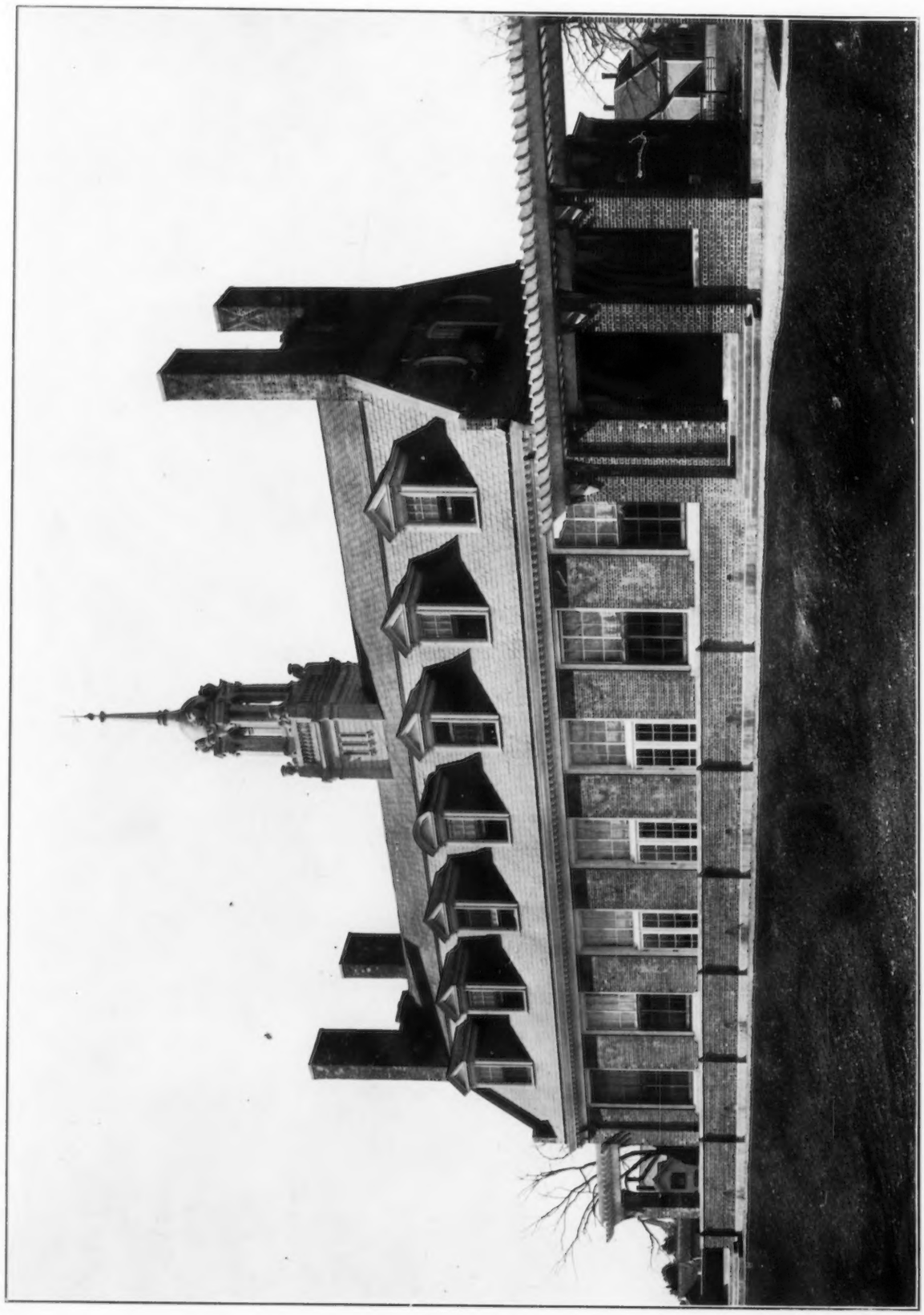
SAFETY may be taken as freedom from trouble arising from one of the following causes: Fire, contagion, vermin, or burglary. Protection against fire is well cared for in the present building laws and is simply a matter of fireproof construction and isolation. The same is true in a large measure for protection against vermin. Protection against burglary or against contagion is largely a matter of isolation and is much more easily attained in a fireproof house than in a non-fireproof house. There is no object in dwelling upon the question of safety at greater length, because most of the matters pertaining to it are too well known to need discussion.

HEALTH is a vital factor in model housing. It may be considered from the following points of view: The question of obtaining light and sunlight in the apartments. The question of obtaining air and ventilation. The question of avoiding dampness. The question of avoid-



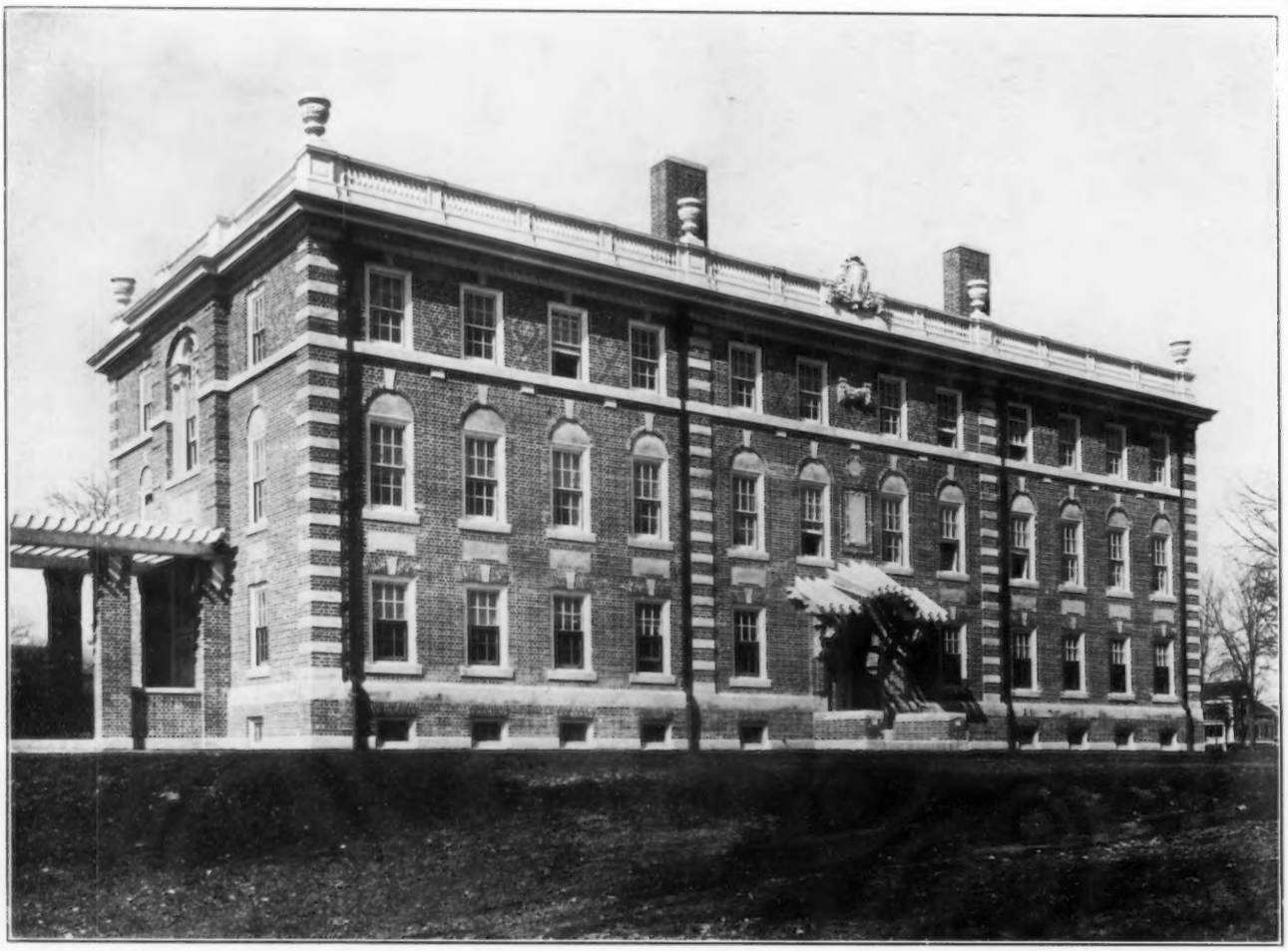
BLOCK PLAN OF MODEL TENEMENTS FOR CITY AND SUBURBAN HOMES COMPANY, AVENUE A, BETWEEN SEVENTY-EIGHTH AND SEVENTY-NINTH STREETS, NEW YORK.

Three types of plans in one group.

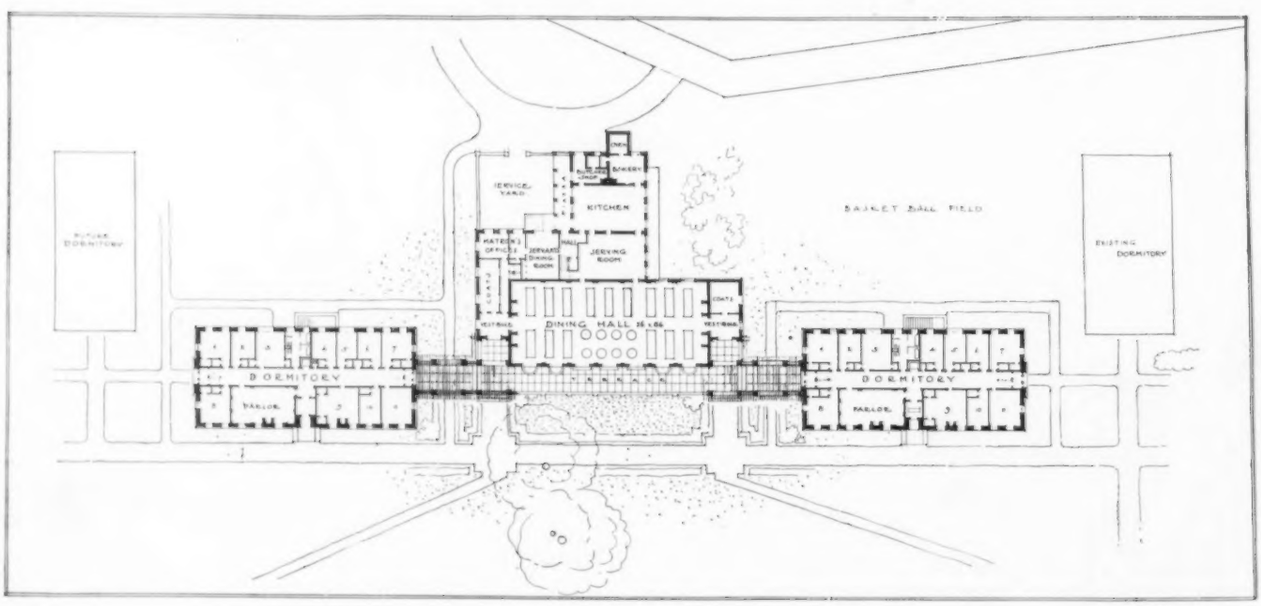


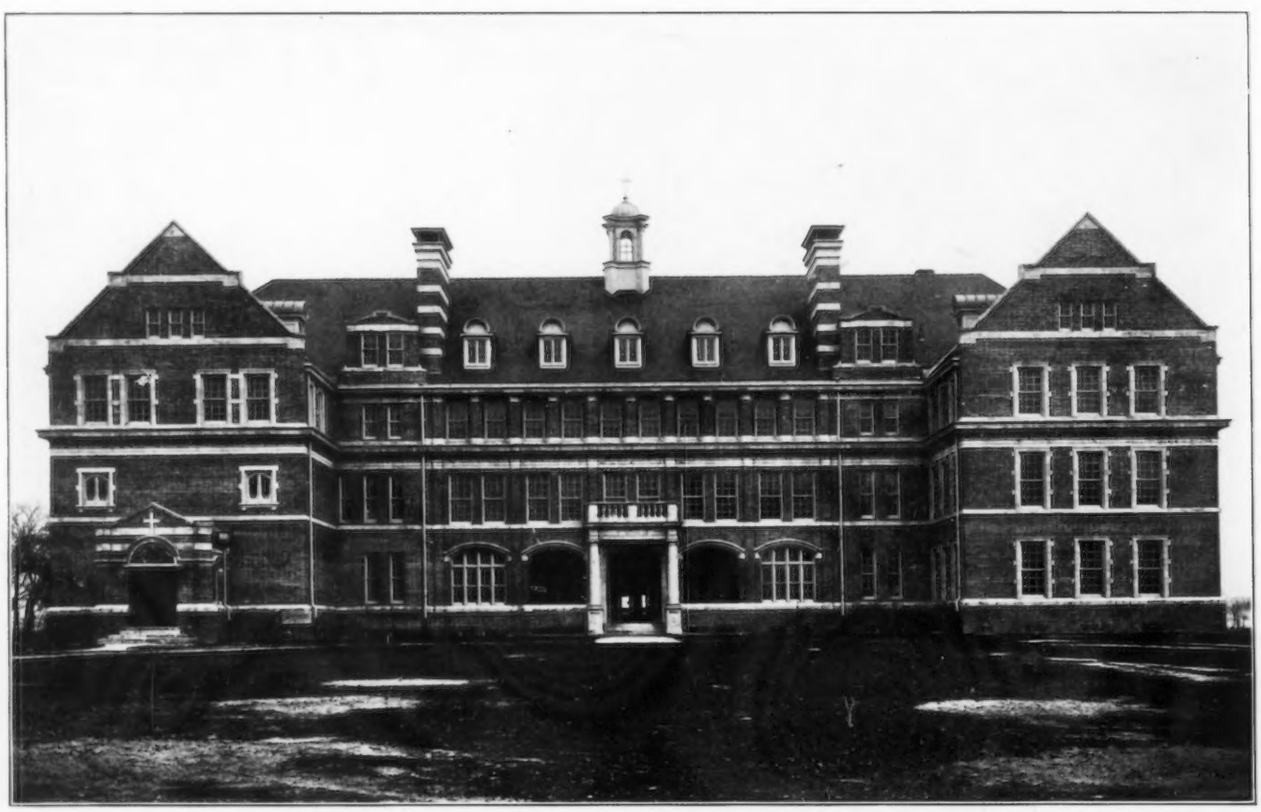
DINING HALL, WHEATON SEMINARY, NORTON, MASS.
RIPLEY & RUSSELL, ARCHITECTS.

UNIV. OF MICH.

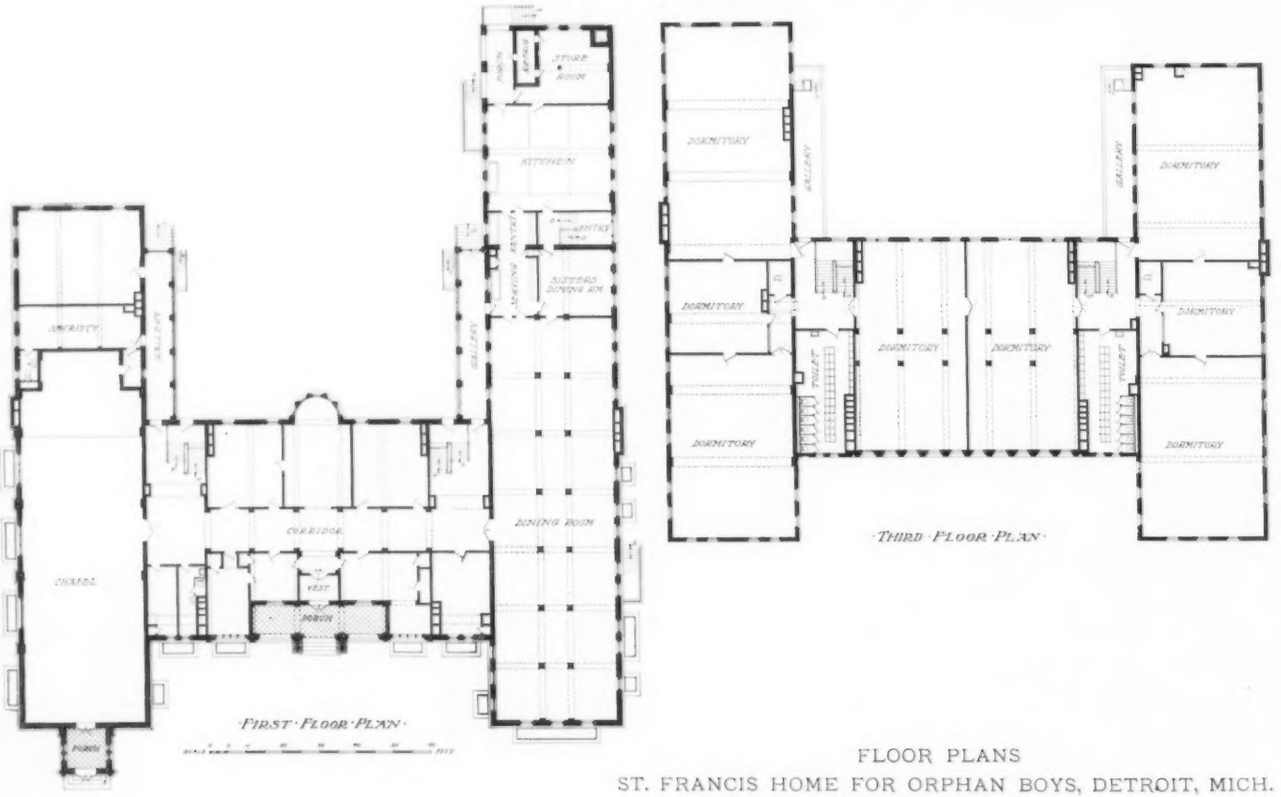


DORMITORY, AND GROUP PLAN, WHEATON SEMINARY, NORTON, MASS.
RIPLEY & RUSSELL, ARCHITECTS.





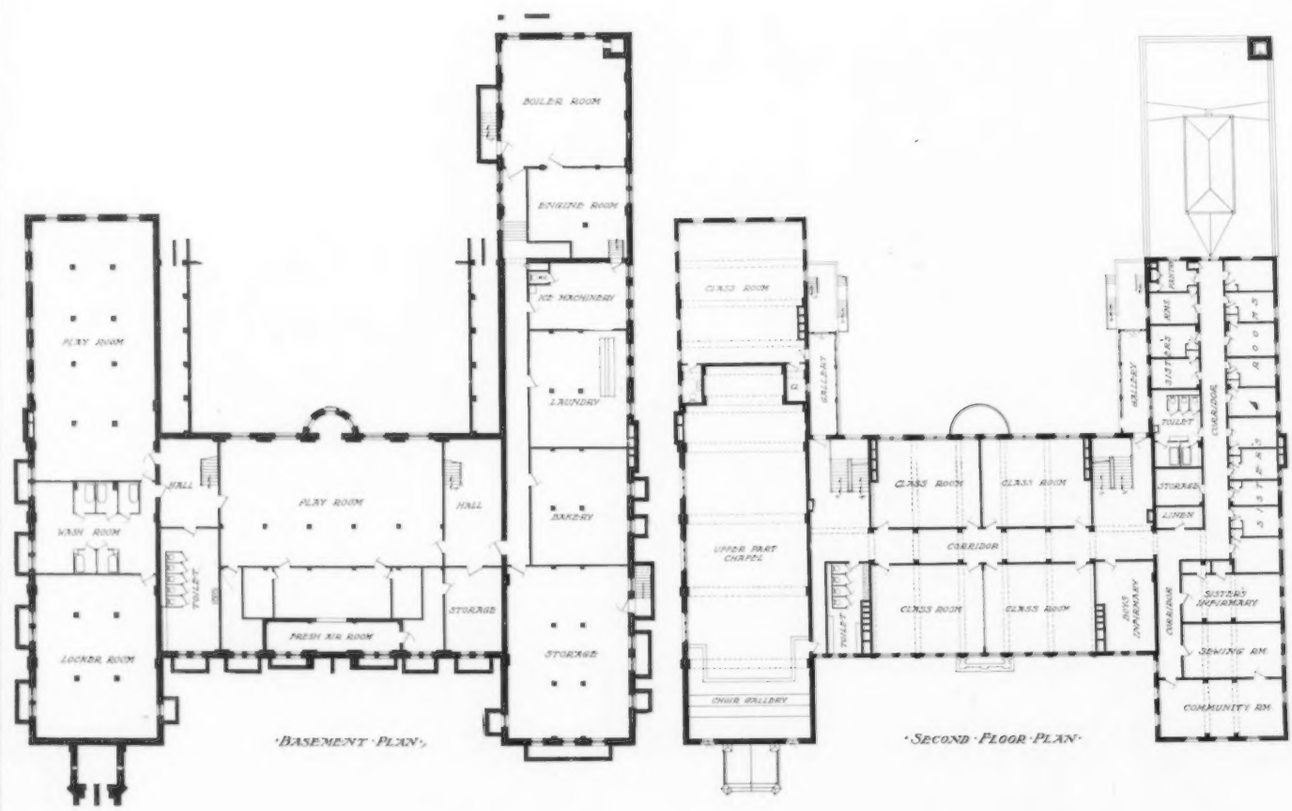
ST. FRANCIS HOME FOR ORPHAN BOYS, DETROIT, MICH.
STRATTON & BALDWIN, ARCHITECTS.

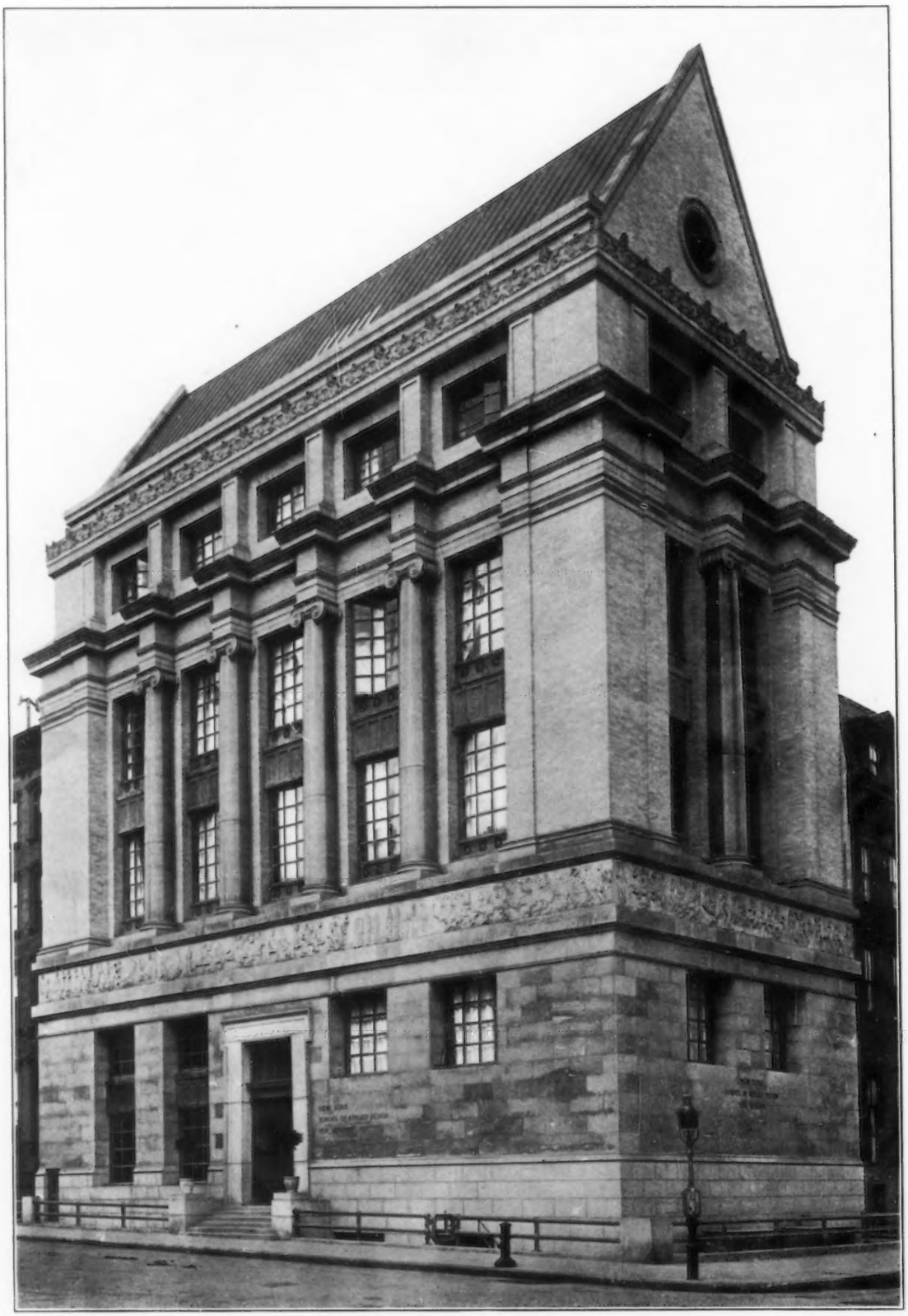


FLOOR PLANS

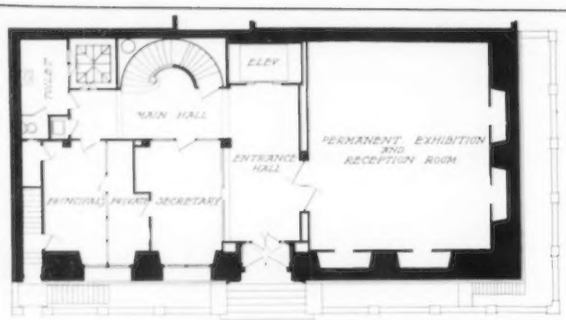
ST. FRANCIS HOME FOR ORPHAN BOYS, DETROIT, MICH.

STRATTON & BALDWIN, ARCHITECTS.

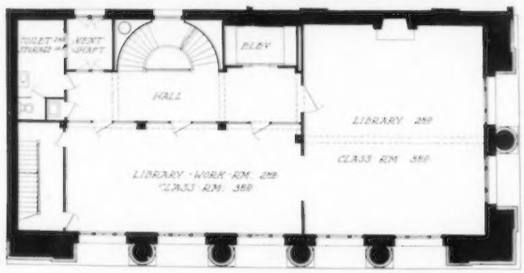




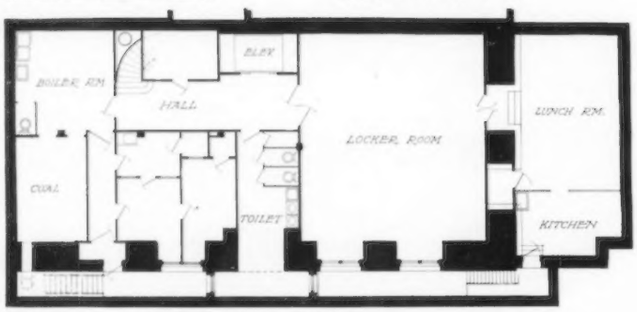
NEW YORK SCHOOL OF APPLIED DESIGN FOR WOMEN, NEW YORK, N. Y.
PELL & CORBETT, ARCHITECTS.



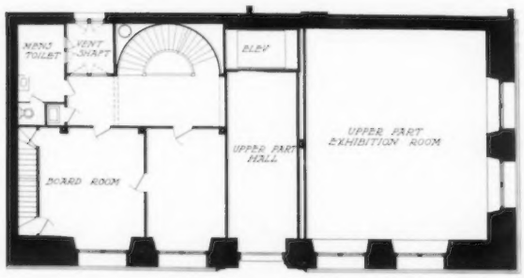
·GROUND·FLOOR·PLAN·



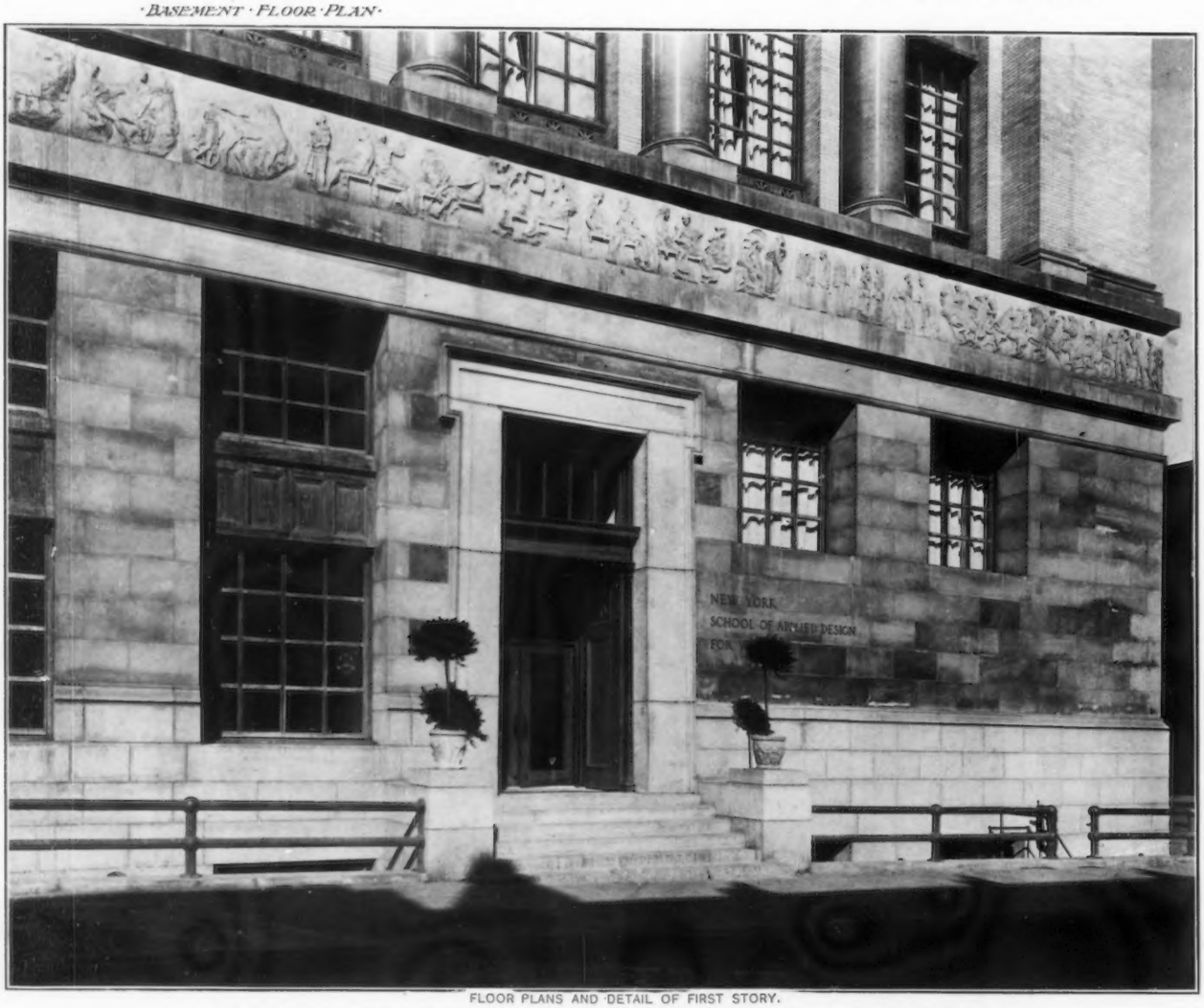
·SECOND·&·THIRD·FLOOR·PLANS·



·BASEMENT·FLOOR·PLAN·



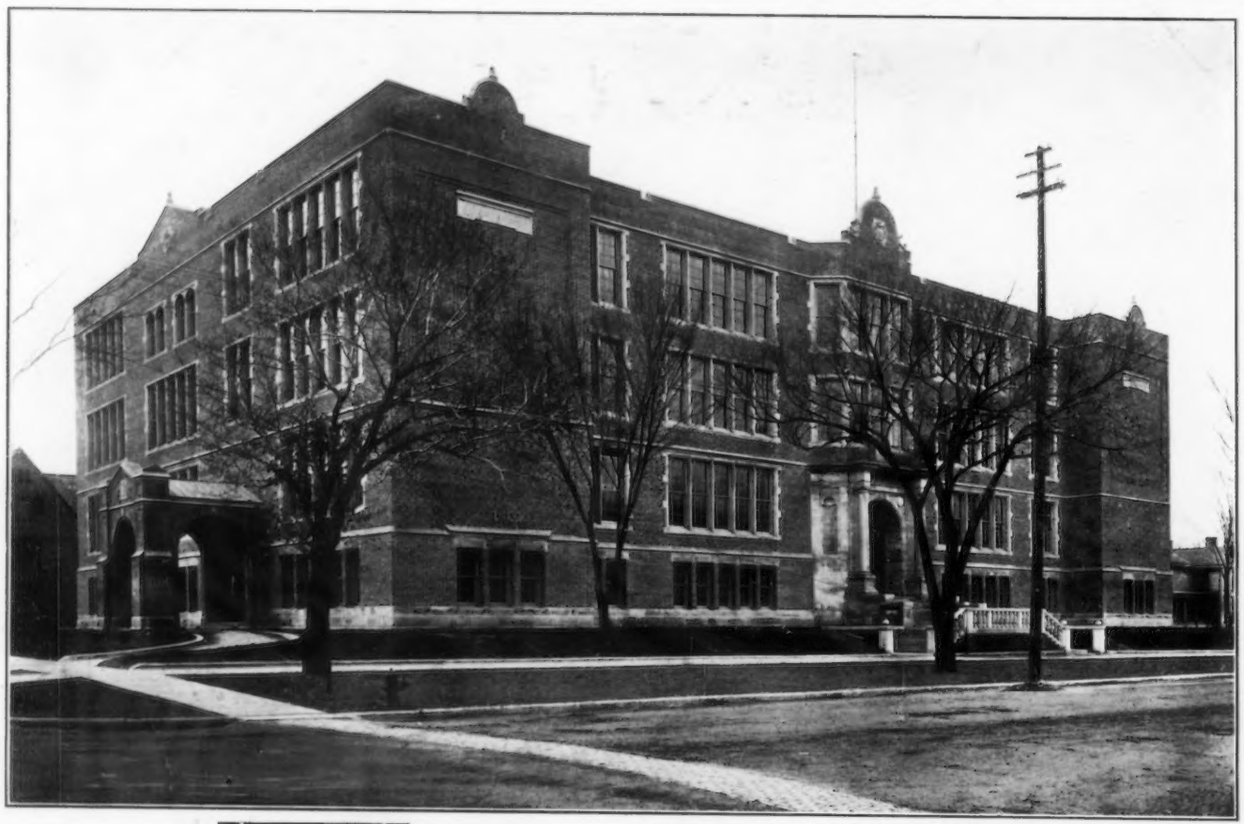
·1ST·MEZZANINE·FLOOR·PLAN·

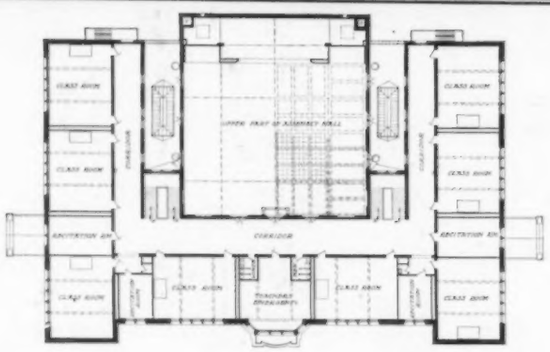


FLOOR PLANS AND DETAIL OF FIRST STORY.

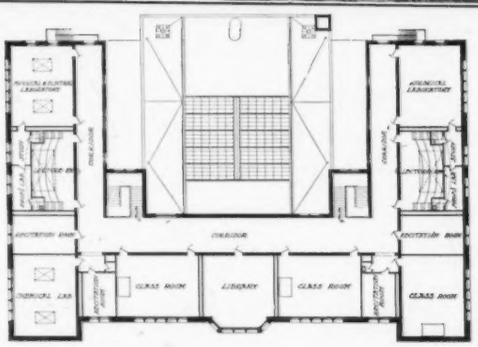
NEW YORK SCHOOL OF APPLIED DESIGN FOR WOMEN, NEW YORK, N. Y.

PELL & CORBETT, ARCHITECTS.

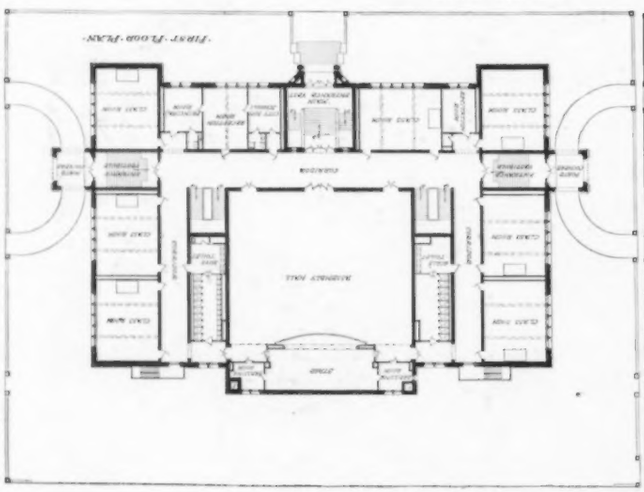


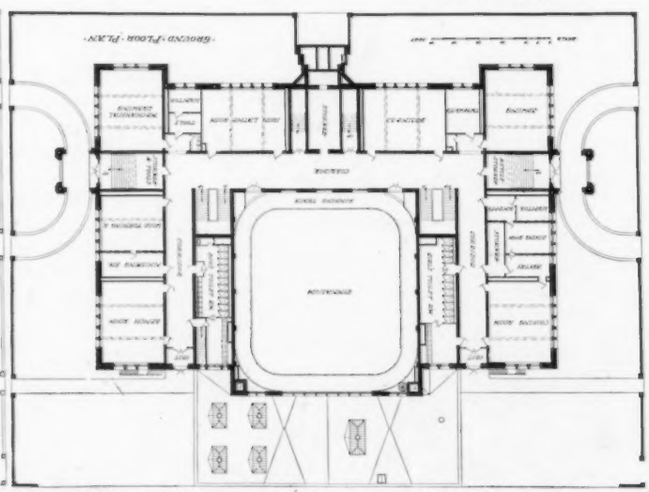


SECOND FLOOR PLAN



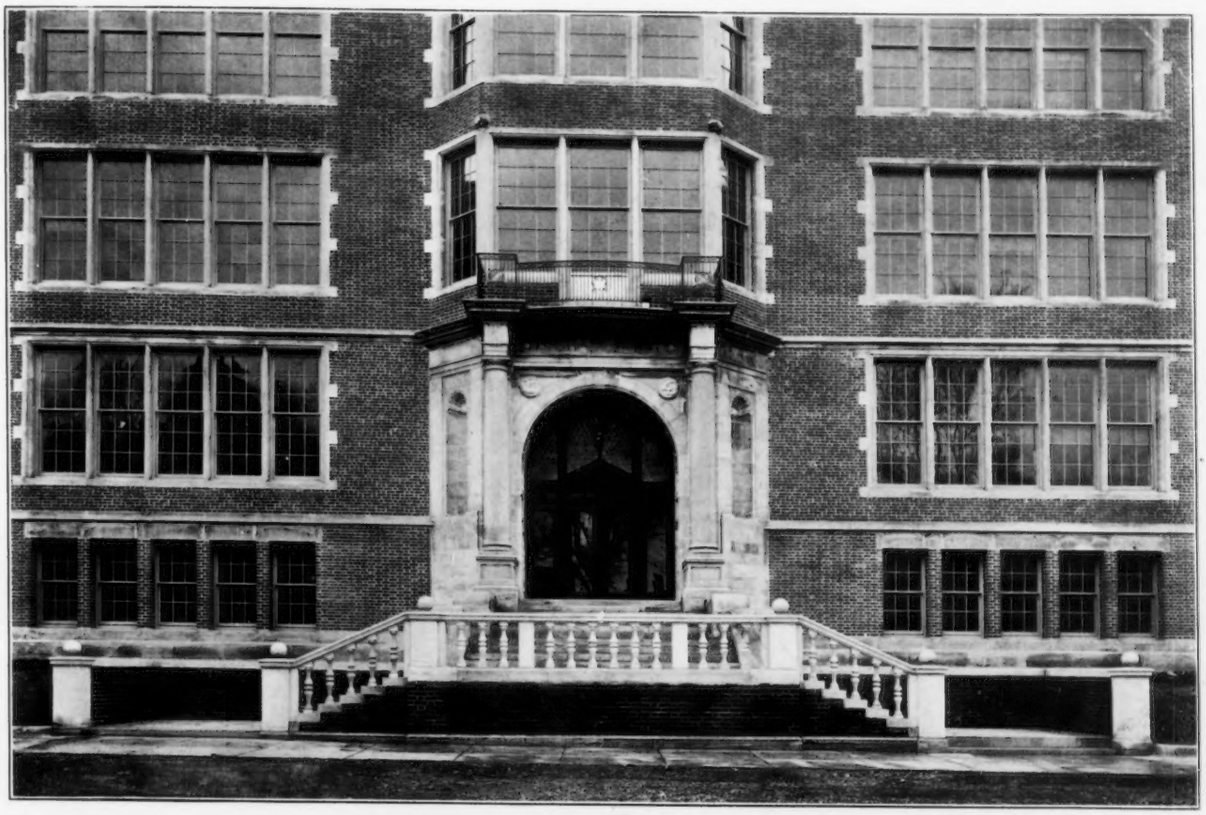
THIRD FLOOR PLAN

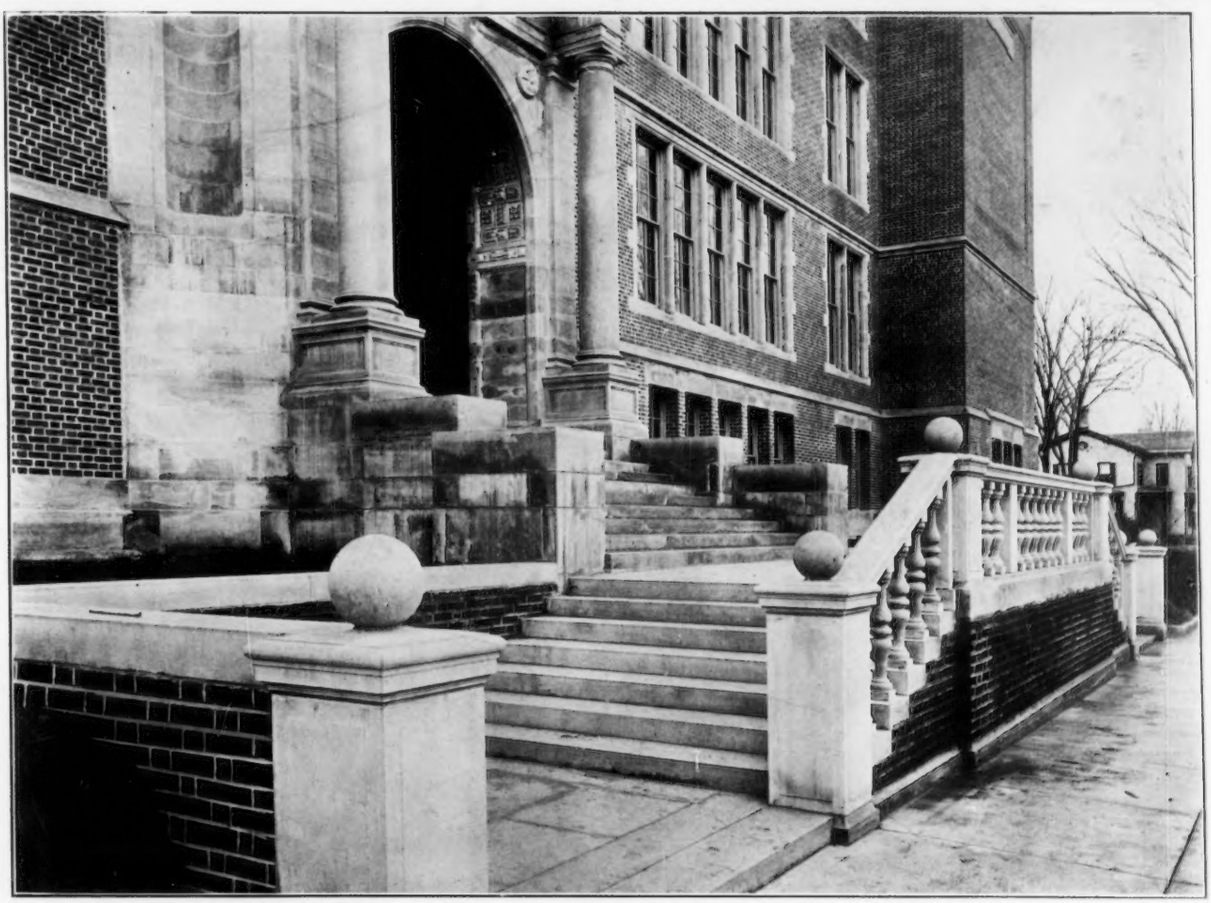




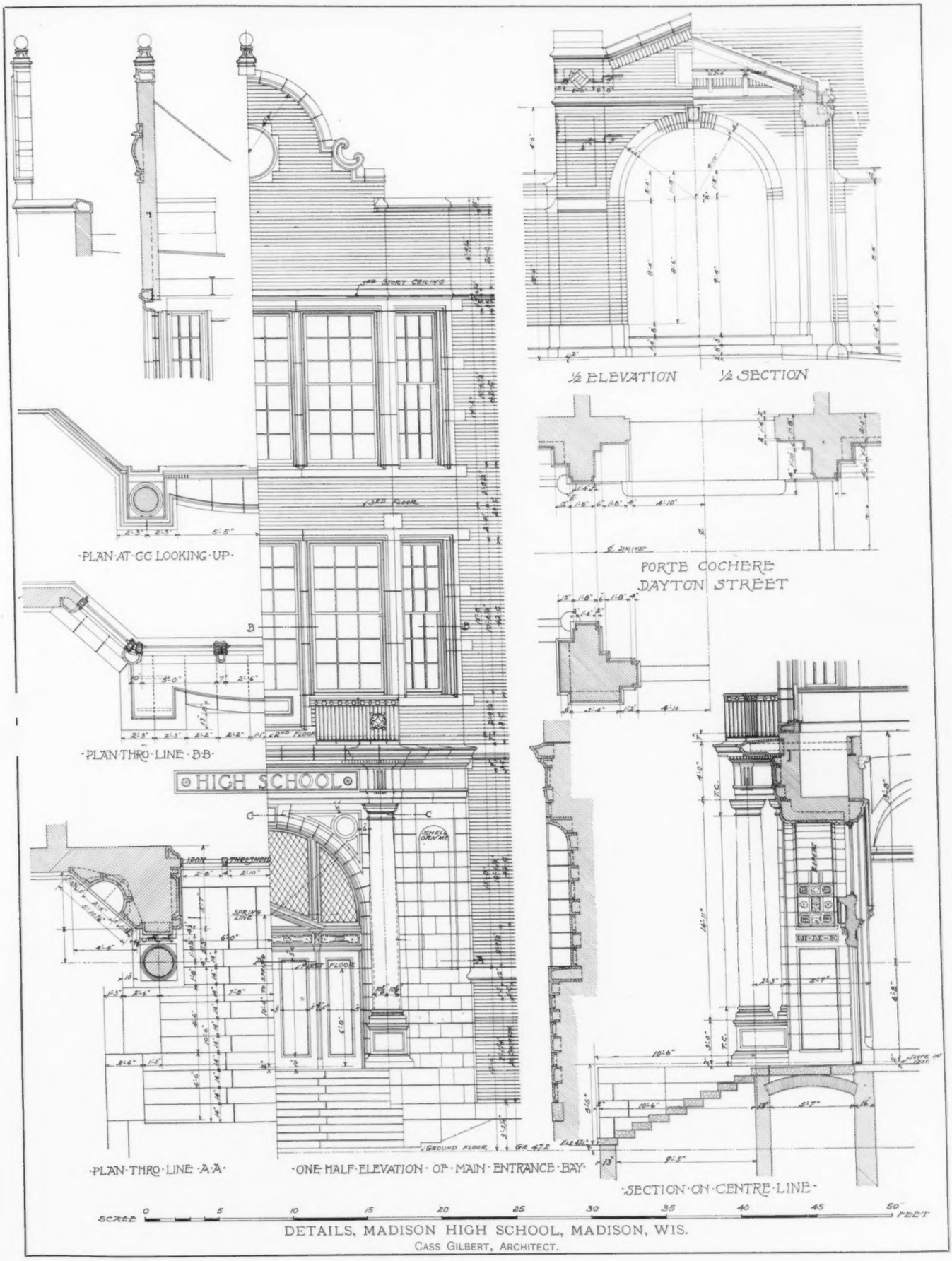
MADISON HIGH SCHOOL, MADISON, WIS.
CASS GILBERT, ARCHITECT.

UNIV OF MICH





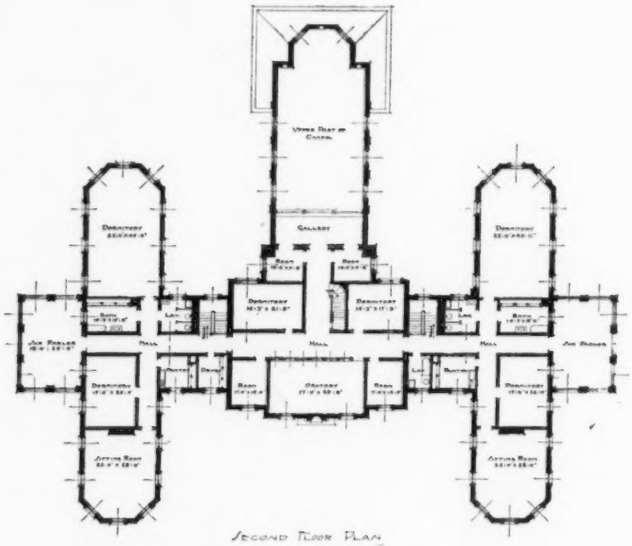
DETAILS OF MAIN ENTRANCE, MADISON HIGH SCHOOL, MADISON, WIS.
CASS GILBERT, ARCHITECT.


½ ELEVATION
½ SECTION
PORTE COCHERE
DAYTON STREET
PLAN AT CC LOOKING UP
PLAN THRO LINE B-B
HIGH SCHOOL
PLAN THRO LINE A-A
ONE HALF ELEVATION OF MAIN ENTRANCE BAY
SECTION ON CENTRE LINE
SCALE 0 5 10 15 20 25 30 35 40 45 50 FEET

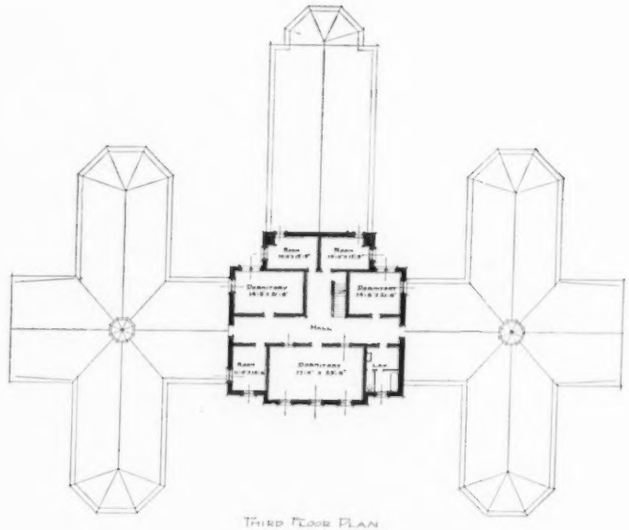
DETAILS, MADISON HIGH SCHOOL, MADISON, WIS.

CASS GILBERT, ARCHITECT.

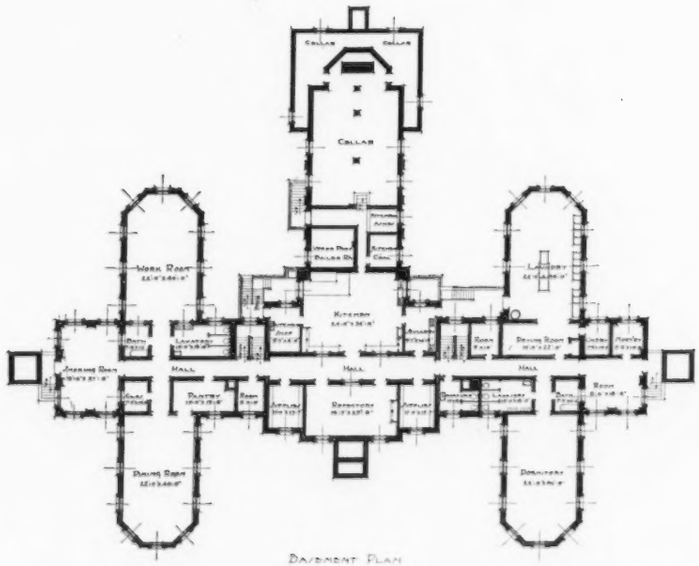
MALONEY HOME FOR AGED MEN, SCRANTON, PA.
HORACE TRUMBAUER, ARCHITECT.



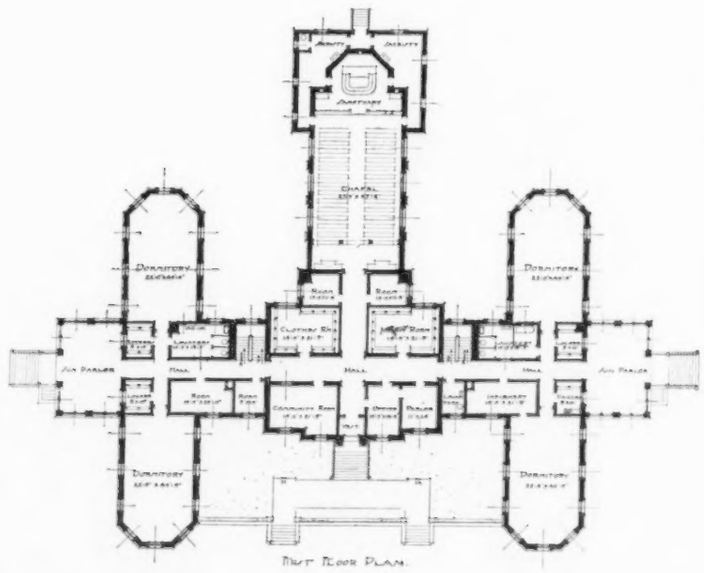
SECOND FLOOR PLAN



THIRD FLOOR PLAN



BASEMENT PLAN



FIRST FLOOR PLAN

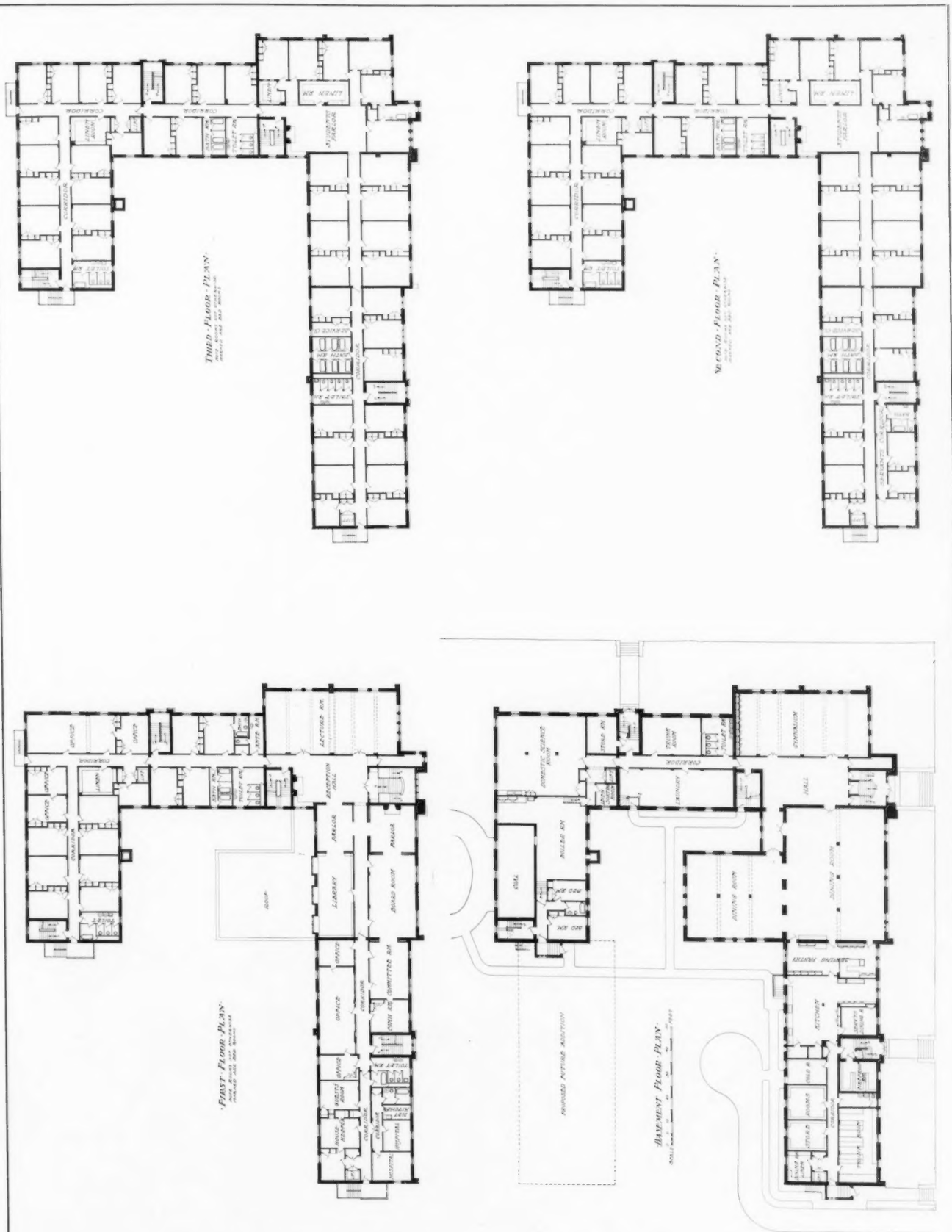
FLOOR PLANS, MALONEY HOME FOR AGED MEN, SCRANTON, PA.
HORACE TRUMBAUER, ARCHITECT.

DETAIL OF FRONT ELEVATION.

DETAIL OF MAIN ENTRANCE.

BUILDING FOR THE WOMEN'S BAPTIST HOME MISSION SOCIETY, CHICAGO, ILL.

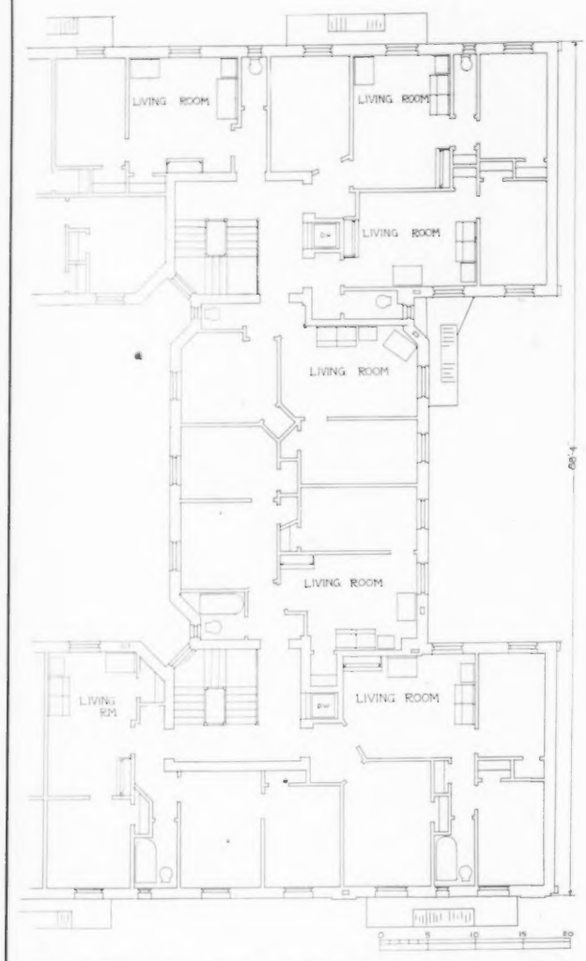
POND & POND, ARCHITECTS.



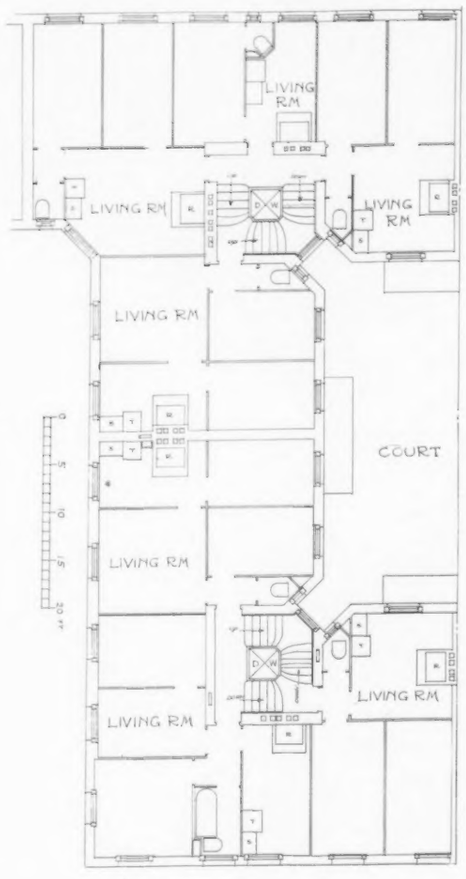
FLOOR PLANS, BUILDING FOR THE WOMEN'S BAPTIST HOME MISSION SOCIETY, CHICAGO, ILL.
POND & POND, ARCHITECTS.

BUILDING FOR THE WOMEN'S BAPTIST HOME MISSION SOCIETY, CHICAGO, ILL.
POND & POND, ARCHITECTS.

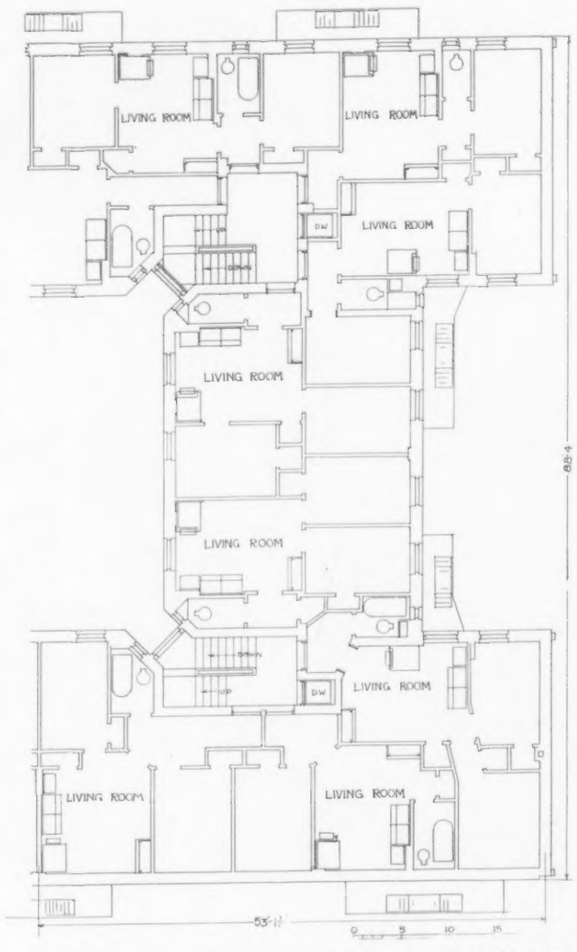
UNIV. OF MICH.



Plan of Typical Unit. Kitchen in living room; seven suites and 23 rooms per floor; lot 52′ 0″ by 100′ 0″; fireproof halls only.



Plan of Typical Unit. Two types combined; seven suites and 23 rooms; building 88′ 0″ by 45′ 0″.

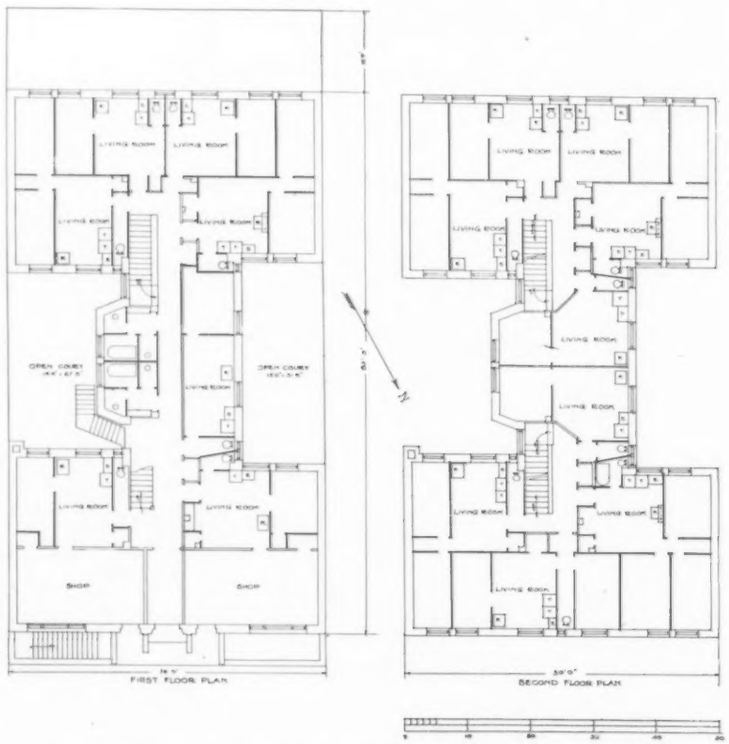


Plan of Typical Unit. Eight suites and 22 rooms per floor; lot 53′ 0″ by 100′ 0″.

MODEL TENEMENTS FOR CITY AND SUBURBAN HOMES COMPANY, NEW YORK.

ing contagion. The question of obtaining sufficient warmth in winter, and the question of having good sanitary arrangements.

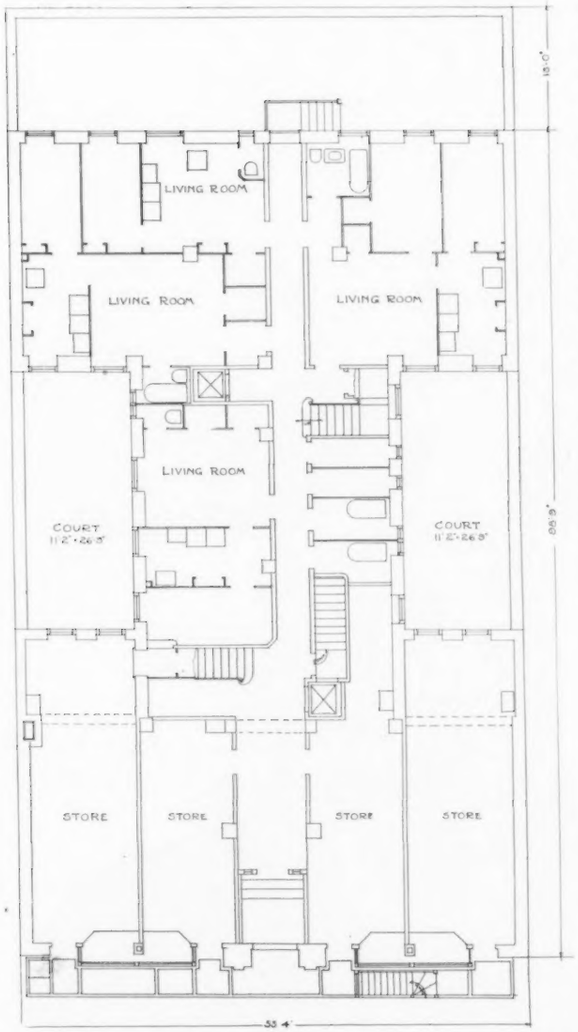
Light and Sunlight. The whole question of improving housing hinges on the necessity of obtaining a certain amount of sunlight in every living room and every sleeping room for a certain time every day. It is absolutely essential to health for it is practically the only agent that exterminates the germs of contagion and disease. This was brought out in the International Tuberculosis Congress in Washington. A few hours of sunlight per day will kill or render harmless the most virulent tuberculosis germs. The effect of sunlight on the bacteria of other diseases is similar. Now, if some method can be devised which will fill every living room and sleeping room for a few hours a day, even on the shortest day in the year, with sunlight, then we have made a long step in advance in the solution of the question of better tenements. This means that every window must have an unobstructed outlook to the south, or to some point south of southwest or southeast. If all courts can be made to open south, or to have any southerly orientation, it means that some sunlight must reach every one of these windows for, at least, an hour a day on the shortest day of the year. If all blocks of houses were only two rooms deep, and ran in northerly and southerly directions, that is, between streets running nearly in a northerly and southerly direction, then this obtaining of sunlight would be comparatively easy. Unfortunately, no cities are laid out on this principle, so that we are forced to make the best of conditions as we find them. In New York City, the street plan is the worst possible from this point of view. In New York, the great majority of the residential streets run east and west, which means that, as tenements are at present built, one half of the windows must face north, thereby never receiving any sunlight at any time of the year. Conditions, even in New York, might be greatly alleviated, if all interior courts were abolished, and outer courts were always made to open to the south or nearly south. These courts should be larger at the open end than at the closed end, in order to give the maximum light to the further end of the court, and, at the same time, obtain the maximum rental space. The height of all tenements should be limited, so that on the shortest day of the year, at noon, when the sun is at its highest point, its rays of light will reach the bottom of the ground floor windows of every room facing on these courts. This would mean limiting the height of such buildings to five, and, in some cases, to four stories.



MODEL TENEMENTS, EAST 40TH STREET, BETWEEN FIRST AND SECOND AVENUES, NEW YORK.

Fireproof, seven stories high, economical arrangement, good investment.
William Emerson, Architect.

Air and Ventilation. A free circulation of air through the dwelling is of almost as much importance from the standpoint of health as the obtaining of light and sunlight. It is evident that the first step towards obtaining such ventilation is to get rid, once and for all, of the interior enclosed court. At best, even in the largest enclosed courts, there is comparatively little circulation of air. Wind blowing across the roofs does not penetrate into such a court. In outer courts, the circulation of air depends upon whether they open in the direction of the prevailing wind or not. If they do not open in such a direction, ventilation there will be almost as stagnant as the interior court. Here again, the ideal principle is to have the blocks of houses only two rooms deep from front to rear wall, opening on streets or alleys along either side. Further, these blocks of houses should be broken into small units by open spaces, or open stairs, between. This question of stairs is a much debated one. In America, with the exception of the White tenements in Brooklyn, and the new Shively tenements in New York, open stairs in tenements have practically never been tried. In Europe, especially in London and Brussels, they are the rule rather than the exception. The stair has been called the vertical street. As such, as long as it can be protected from rain and snow, there is no reason why it should not be open like the street. There is no question but that such a stair is far more sanitary and far more healthful than the customary disease-breeding enclosed



FIRST FLOOR PLAN, TENEMENT HOUSES FOR SHEPHERD K. DE FOREST, ESQ., 203–205 EAST TWENTY-SEVENTH STREET, NEW YORK.

Ernest Flagg, Architect.

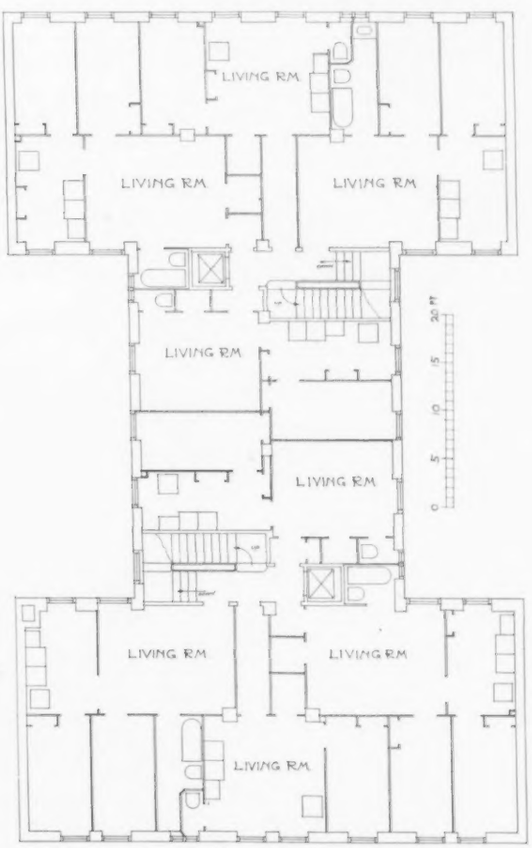
stairway which we have now. And such a stair might just as well go a little further than these open stairs of Europe, and be opened along two opposite sides, instead of one side only, coming in between two blocks of buildings, and acting as a ventilating space between them. Here, as in the case of light and sunlight, there is a certain maximum of efficient height. In the case of the open stair this would seem to be, for normal conditions, in the neighborhood of five stories.

CONTAGION. The avoiding of contagion is similar to the above in its conditions. What applies to the one would apply to the other. The more the different apartments can be separated from one another by a circulation of air between them, and by permanent masonry construction, the less danger will there be of a spread of any form of contagion or infectious disease.

HEALTH IN WINTER. It is necessary that the warming of the apartment in winter should not be according to the customary method of simply heating over and over again the stagnant air of the rooms. Fresh air must be introduced, and foul air must find its way out of the rooms. This means that the fresh air from out of doors must pass over heat coils under the windows, circulate along the floor, up the back walls of the room, along the ceiling, back to the space above the windows, where there will be some opening for its egress. This should be, further, so arranged that it will not be easy for the tenant to plug up these openings to the outer air.

DAMPNESS. It is essential to health that the rooms should not be damp. This is almost entirely a matter of the construction of the exterior walls according to one or another of the well-known systems of damp proofing, or the leaving of hollow spaces between the outer walls and the plastering.

SANITARY ARRANGEMENTS. This phase of the question, which is so vital to health, is quite well cared for in most of the present building codes, but it is, further, essential that the toilet room should open to the outer air, and not into an enclosed court or shaft, and that there should be some means of obtaining a circulation of air through it, so that there may never be a chance for air to stagnate there. With the type of plan only two rooms deep, between narrow streets, running north and south or nearly so, this is comparatively easy to obtain.



TYPICAL FLOOR PLAN, TENEMENT HOUSES FOR SHEPHERD K. DE FOREST, ESQ., 203–205 EAST TWENTY-SEVENTH STREET, N. Y.

This plan is exceptionally economical of space, giving about maximum return possible on a fireproof building. It gives eight suites of 28 rooms per floor on a lot 53′ 0″ by 100′ 0″.

Ernest Flagg, Architect.

Terra Cotta Hollow Tiles for Walls of Houses.

BY C. H. HUGHES.

TERRA COTTA made into hollow blocks and tiles, has brought out a new type of construction, which is well adapted for walls of suburban houses of a moderate cost. The block is practically the same as used in the floors of large office buildings, but is manufactured of a denser material and is much heavier and thicker. It has dovetailed scorings on four sides, forming a mechanical bond for the stucco on the exterior and the plaster on the interior. The standard size is 12 inches long, 12 inches wide, and 8 inches deep, which is strong and deep enough for the average country house wall, but should an exceptionally heavy wall be required a 12 inch by 12 inch by 10 inch or a 12 inch by 12 inch by 12 inch block can be used. Some houses are now being built with a 12 inch wall consisting of two 6 inch by 12 inch by 12 inch blocks, tied together about every 12 inches on the bed joint with galvanized corrugated wall ties. The blocks are laid in cement with the cores vertical. The joints are broken vertically giving an air space from the top to the bottom, except where interfered with by doors and windows.

FIG. 1. A STANDARD BLOCK.
Size 12" by 12" by 8".

The height of a block is 12 inches and as walls have to be stopped at predetermined heights, this can be accomplished without chipping the blocks and leaving ragged and rough ends. In making the blocks, before they have hardened, a wire is drawn through them at right angles to the cores. The halves harden as one, yet they can be readily broken apart by lightly hitting with a trowel or hammer.

With 8 inch blocks no special corner blocks are necessary, but where 10 inch and 12 inch blocks are used they are, as the 10 inch only gives a 2 inch bond on the corners and the 12 inch none at all. To get a bond for these sizes a 16 inch by 12 inch by 12 inch block (Figs. 3 and 4) is used for both.

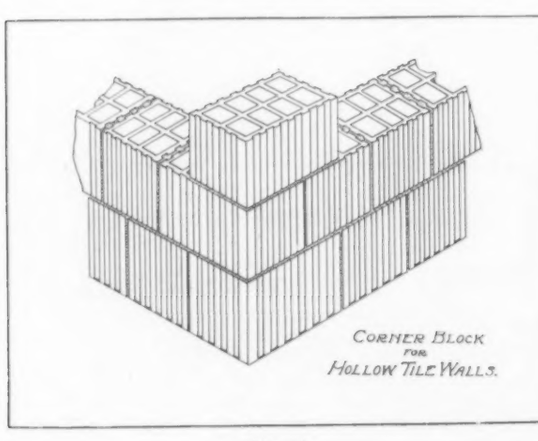


FIG. 3.

When a stucco finish is desired, the cement is applied in two coats, first a rough scratch coat about ½ inch thick and then a finished coat of ¼ inch. Owing to the scoring on the blocks the cement gets a firm grip on them, and will not crack and fall off.

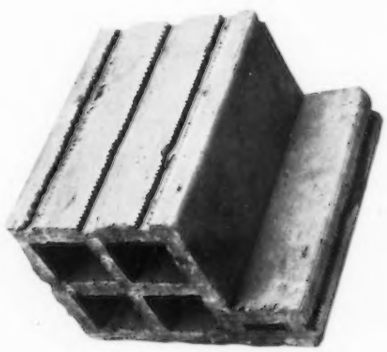


FIG. 2. A JAMB BLOCK.

Figs. 5 and 6 illustrate the wall construction of a house built at St. James, Long Island, N. Y., L. A. Butler and Ford, Stewart and Oliver, architects.

By modifying the size and shape of the blocks, they are suitable for window sills, lintels, and other details which were formerly built of concrete or brick. Take for instance the window openings as shown in Figs. 2 and 7. Here a jamb block is used with the main portion, 8¼ inches long by 8 inches deep by 12 inches high, and with a lip 3¼ inches long by 2½ inches deep. On the end of the lip will be noticed a dovetail score for taking the cement finish. Behind the lip the window frame is placed. This arrangement secures a water-tight joint around the frame, and prevents any moisture from getting in on the inner face of the wall.

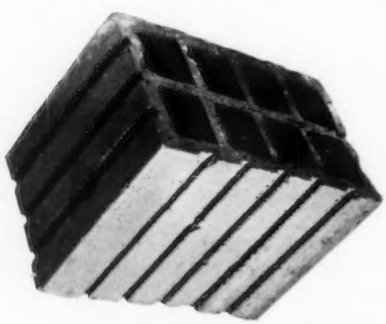


FIG. 4. A CORNER BLOCK.
Size 16" by 12" by 12".

For window sills, the wall is finished off with 4 inch by 12 inch by 12 inch blocks with the 12 inch faces horizontal, which cover the vertical cores so no water from the outside can work in.

The blocks are adaptable for lintels, as is shown in Figs. 6 and 7. Two rows of 2 inch by 12 inch by 12 inch blocks are used, one on the outside of the wall and the other on the inside, with the space between them filled with concrete which is re-inforced by steel rods. There are two points in this construction that are particularly note-

FIG. 5. HOUSE, ST. JAMES, L. I., N. Y.

worthy: First, in a house built of terra cotta blocks that are to be given a stucco finish, the old method was to use solid concrete beams for the lintels, but it was always found difficult to match the shade of this concrete with the stucco or. vice versa. With the new method, the walls, lintels, and window sills can be given the stucco

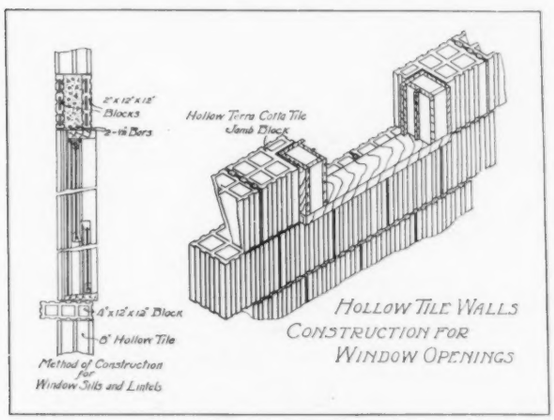


FIG. 7.

finish at the same time, thus securing one shade throughout. Second, the concrete lintels admitted dampness to the inside of the house, but none is admitted when blocks are used.

The floor construction is naturally divided into two classes, viz: fireproof with terra cotta floors and concrete beams, and non-fireproof with wood joists. Fig. 8 shows

FIG. 9. HOUSE, ST. JAMES, L. I., N. Y.

the fireproof construction. On top of the wall blocks 1 inch by 8 inch tile slabs are laid, and on them rest reinforced concrete beams. Between the beams are the floor blocks with the cores parallel to them. Blocks are laid on the outside, covering the ends of both the beams and floor blocks. Above the floor, the wall is built the same as below.

Referring to Fig. 9, a house at St. James, L. I., it will be noticed that the concrete beams are about 2 inches

FIG. 6. HOUSE, ST. JAMES, L. I., N. Y.

above the blocks, and here the floor was ultimately covered with a layer of concrete.

For a non-fireproof floor the wall is stopped and a course of brick is laid. On the outside, 3 inch blocks are placed and behind them a layer of cement, and then more blocks bringing the wall up to the regular thickness. The floor joists rest on top of the bricks and the ends are covered with concrete. See Fig. 10.

Fig. 11 is of a fireproof roof built of blocks with reinforced concrete rafters. The blocks are laid in rows

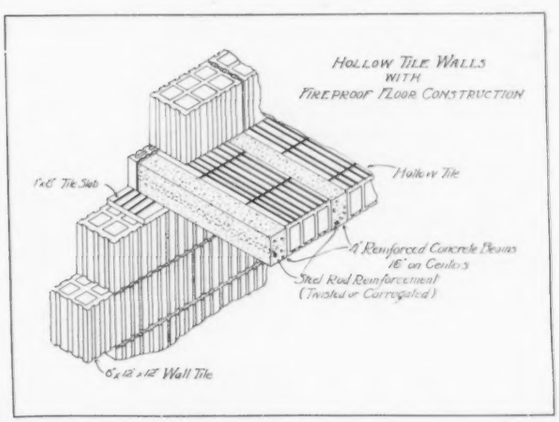


FIG. 8.

with the cores horizontal and with about 4 inches of concrete reinforced by a steel rod between the rows.

For an ordinary wooden roof, bolts are placed in the cores of the two upper blocks and the cores filled with cement. See Fig. 12. Across the top, a plank is laid, that is held in position by the bolts with nuts and washers on the ends. The rafters rest on the plank and the usual roof construction is then followed.

Besides the fireproof qualities the blocks have the further advantages of being sanitary, and walls and floors built of them are moisture and sound proof. The air

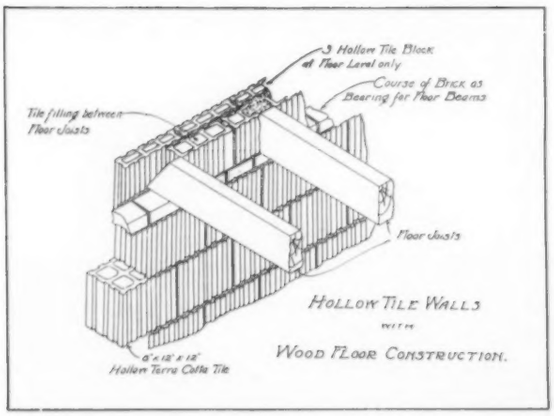

3 Hollow Tile Block at Floor Level only
Course of Brick as Bearing for Floor Beams
Tile filling between Floor Joists
Floor Joists
HOLLOW TILE WALLS
WITH
WOOD FLOOR CONSTRUCTION.
6"x12"x12" Hollow Terra Cotta Tile

FIG. 10.

space is also a very important feature, as sudden changes of temperature are not so noticeable in the house, which is kept warmer in winter and cooler in summer.

Fig. 13 shows a house at Cedarhurst, Long Island, N. Y., L. Boynton, architect. Note the stenciling of the stucco under the roof eaves, which is done in red and blue imitating Italian Mosaic work. From the roadway it is impossible to distinguish it from the real. With a stucco finish no painting is required — and the combination of cement and terra cotta has a long life.

Should color effects be desired, they can be readily obtained by using different kinds of clay. Colors rang-

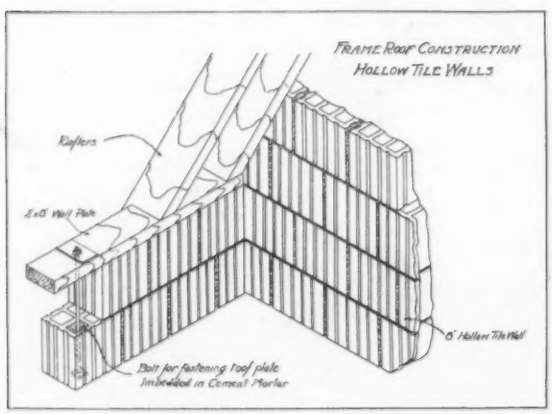


FIG. 12.

ing from a light buff to a deep chocolate brown are in common use.

To entirely disapprove any statements made on the weakness of terra cotta under compression, tests have been made on blocks at the Engineering Laboratories of the Massachusetts Institute of Technology, Boston, Mass. Three blocks 12 inches high by 12 inches long by 10 inches wide with an outside shell 7/8 inch thick and webs 3/4 inch, with six cores, of hard dense material were tested in an Emery machine. Each sustained a load of 300,000 pounds, or 5,560 pounds per square inch of sectional area, which was the full load capacity of the testing machine.

The first cost of a house should not be taken as the basis on which the contract is awarded. The maintenance and repairs should be carefully considered and the prospective owner should before deciding make an estimate on the valuation of the house in five years. If such an estimate is made, it almost always shows the advantage of terra cotta block construction over all others.

The following figures while more or less approximate (they were approved by two well known architects and

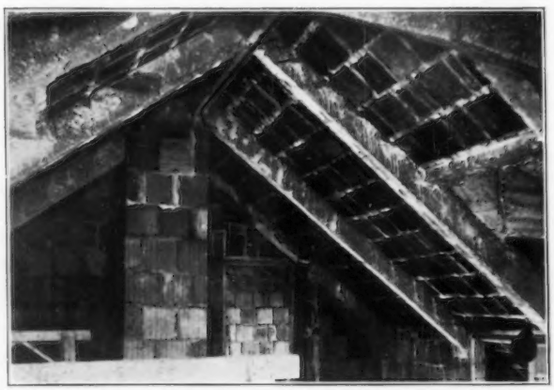


FIG. 11. ROOF BUILT OF BLOCKS WITH REINFORCED CONCRETE RAFTERS.

two reliable builders) give an idea of the cost of a house using different types of construction in the vicinity of New York City. The figures are perhaps fair for any large city.

Frame construction, all wood	$10,000
Brick outside walls, wooden interior	11,000
Stucco or expanded metal, wooden interior	10,250
Hollow terra cotta blocks stuccoed, wooden interior	10,500

FIG. 13. HOUSE AT CEDARHURST, L. I., N. Y.

Hollow terra cotta blocks stuccoed, fireproof throughout, except roof	12,000
Hollow terra cotta blocks faced with brick, fireproof floors	14,000
Brick walls, fireproof floors	15,000

Houses can be built with terra cotta blocks for walls and floors with wooden roofs, at a cost of twenty-two cents per cubic foot; if built with wooden floors and roof, at eighteen cents per cubic foot.

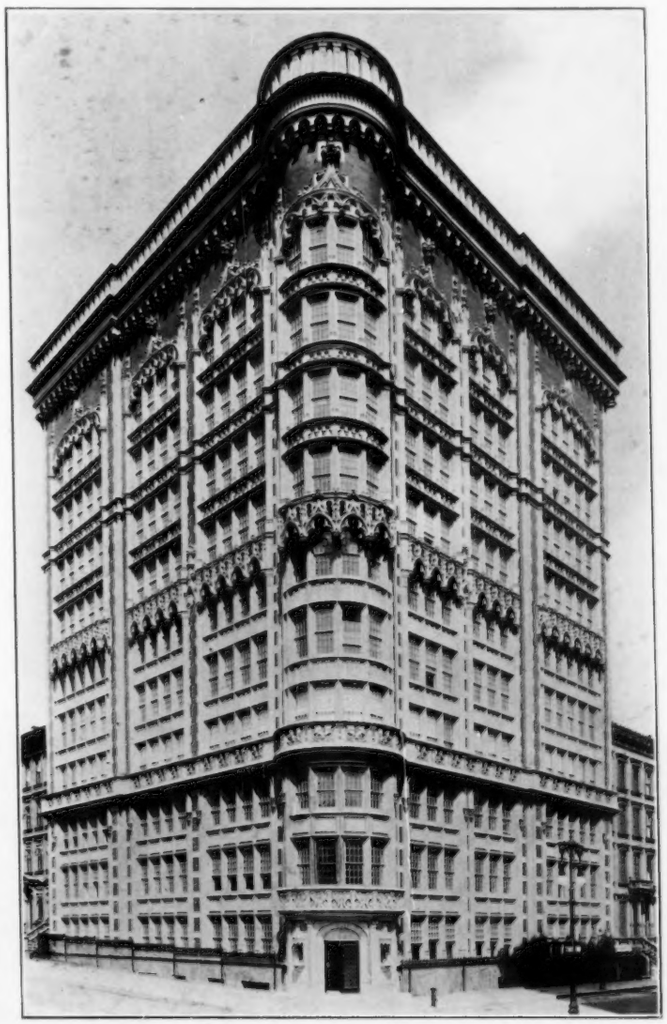
Editorial Comment and Miscellany.

MADISON HIGH SCHOOL, MADISON, WIS.

CASS GILBERT, ARCHITECT.

THE building was designed in the Jacobean style of architecture, which style was considered best adapted for school buildings and permits the minimum width of piers and mullions, and the maximum area of window openings lighting the rooms. The adoption of this style of architecture is considered more intimate, and follows the style of the old college buildings at Oxford and Cambridge in England, and has been used with great success in some of the more recent school buildings in America.

The exterior expresses logically the arrangement of the plan, window and door openings being placed frankly where they appear in the numerous rooms. The exterior is faced with vitrified face brick and trimmed with Bedford stone. The brick are rough and uneven in color, thus giving a color quality to the wall and a certain vigor and strength. The unevenness of color and roughness of texture supply in part the "texture" quality which would otherwise have to be given by carved detail or ornament. The very wide mortar joints add to the color effect and to the appearance of rugged strength not otherwise possible in a building of flat surfaces and wide window openings.



PARKVIEW APARTMENTS, MADISON AVENUE, NEW YORK.
Gray terra cotta from sidewalk to roof furnished by Atlantic Terra Cotta Company.
Harde & Short, Architects.

The construction of the building is of substantial character, the corridors and stairways being fireproof. The minimum amount of woodwork has been used, the finish being simple and practical throughout. The corridors are lined with face brick. The floors thereof are of cement, insuring a sanitary condition in the building.

A large assembly room with a stage and dressing room adjacent thereto is located on the main floor of the building and provided with ample exit therefrom. On account of lack of funds the original design of the architect could not be completed. The room lacks in that respect, and also lacks color decoration which should be done in harmony with the style of the building.

A large and spacious gymnasium extending the full height of the basement and ground story is located directly under the assembly hall, amply lighted by extensive windows from the rear. Showers, lockers, and toilet rooms for boys and girls are located on each side adjacent to the gymnasium.

The heating and ventilating plant is located directly in the rear of the gymnasium and outside of the limits of the building proper. The building is heated by a combination system, i.e., steam for heating purposes and forced blast tempered air for ventilating, and so arranged that either the direct or indirect system can be used independent of each other.

The building has been planned as a central high school building and comprises, besides the regular studies, instructions in manual training and domestic economy.

On the third floor are located biological, chemical, physical, and electrical laboratories and lecture rooms, the library and free-hand and mechanical drawing rooms. On the second floor are located class and recitation rooms, also teachers' retiring room. On the main floor are located class and recitation rooms and offices of the superintendent and principal. In the ground story are located the manual training and domestic economy departments. Ample toilet facilities are provided, the main toilet rooms being located in the ground and first story. Private toilet rooms are also provided for the superintendent, principal, teachers' retiring room, and manual training director.

The building has been substantially constructed and its cost (approximately fourteen cents per cubic foot) compared with the buildings constructed in recent years in different cities of the United States is certainly very low. It is doubtful if the building could be duplicated at the same cost.

CASINO AT DEAL BEACH, N. J.
Roofed with Ludowici-Celadon tiles.
David Ach, Architect.

AT THE meeting of the Philadelphia Chapter, A.I.A., held on the evening of April 13th, a resolution was adopted that the chapter make application to the board of directors of the American Institute of Architects for authority to include in the territory of the chapter, in addition to the city of Philadelphia and vicinity, all other territory in the state of Pennsylvania not granted to any other chapter, in order that the Philadelphia Chapter may incorporate in its by-laws a provision for non-resident membership as there are many men in active practice in the various parts of the state, some of whom are members of the Institute, although not attached to any chapter. A motion was also adopted that it is the sense of the chapter that the work of the American Institute of Architects should be given all possible publicity with a view of forming higher professional standards and educating the public in architectural matters and urging the president and board of directors of the American Institute of Architects to appoint a Committee on Publicity to give, with the approval of the said board, the affairs of the Institute generally as much publicity as possible. In view of the fact that the fortieth anniversary of the founding of the Philadelphia chapter will occur in October next, a committee consisting of Messrs. W. D. Hewitt, George R. Stearns, Albert Kelsey, Horace W. Sellers, John T. Windrim, Ed. A. Crane, and D. Knickerbacker Boyd was appointed to take steps for a fitting commemoration of the event.

UNIVERSITY CLUB, CHICAGO.
Fireproofed throughout with terra cotta hollow tile. Made by National Fire-proofing Company.
Holabird & Roche, Architects.

At a convention of the Pacific coast architects held March 22d, the Architectural League of the Pacific Coast was formed, and the following officers were elected: President, Willis Polk, San Francisco; vice-president, E. F. Lawrence, Portland; secretary, J. D. Myers, Seattle; treasurer, Myron Hunt, Los Angeles. The objects of the league as set forth in its constitution are as follows: The securing of affiliation between chapters of the American Institute of Architects and architectural clubs; the formation of similar organizations in cities where none now exist; the establishing of a circuit of annual architectural exhibitions; an annual convention of architects; the promotion of scholarship work by draftsmen.

ADVANCES in the price of rooms in the new dormitories at Yale will add about five and one half per cent to the annual revenue from these buildings. This plan is apparently a substitute for the proposed increase of tuition, which was not received with favor when raised in the corporation a year ago. Thus does improved architecture improve university finance. In future no low priced dormitories are likely to be

TERRA COTTA COLUMN FOR CHICAGO AND NORTHWESTERN DEPOT.
Made by American Terra Cotta and Ceramic Company.
Frost & Granger, Architects.

built unless ordered by donors. The lower prices will continue, however, to apply to the older buildings, while the rooms in the new Haughton Hall will rank next to Vanderbilt Hall (the highest priced dormitory) in rentals. All prices are considerably lower than those charged in private dormitories.

ONE of the bills introduced at the last session of Congress, and destined to come up for consideration in the future, was that of Representative Landis' providing $250,000 for the erection of a summer home for the President. It is proposed to build the mansion on the reservation of the Military Academy at West Point. This would avoid the necessity of purchasing land and would enable all the money to be devoted to the building of the executive's summer home. . . . On February 19, Representative Bede of Minnesota introduced a bill appropriating $100,000 for the erection of homes in Washington for the Speaker of the House and the Vice-President.

AT THE instance of real estate interests, Senator Agnew has introduced a bill at Albany to amend the lien law of New York State. One feature is that the interest of an owner of real property shall not be affected by the lien for labor or materials which may have been performed or furnished at the request of a tenant or purchaser, "except upon the written consent of the owner or his agent." Another change provides that the lien shall be limited to the amount unpaid on labor performed or materials furnished.

DETAILS is the title of an architectural journal which made its first appearance in January of this year. It is published monthly at 392 Strand, London, England, (subscription price, 12 shillings). The contents will consist entirely of illustrations which will be made from especially-taken photographs reproduced to a large size, and accompanied in every case by measured or scaled drawings, and by such particulars as are necessary or interesting. Examples of modern work by leading English and French architects will be given, as well as fine examples of old work. The work is edited by Mr. R. Randal Phillips, an architect by training, and for a number of years associate editor with the *Builders' Journal and Architectural Engineer*, London. Mr. Phillips will no doubt be remembered by readers of THE BRICKBUILDER as our London correspondent.

CORN EXCHANGE BANK, CHICAGO.
Built of brick made by Ohio Mining & Manufacturing Company, Thomas Moulding Company, Chicago, Agents.
Shepley, Rutan & Coolidge, Architects.

DETAIL BY A. C. LONGYEAR, ARCHITECT.
South Amboy Terra Cotta Company, Makers.

SAMUEL CABOT (Inc.), Boston, Mass., has just issued a very interesting booklet treating of waterproof stains for staining and waterproofing all kinds of cement buildings —plaster, stucco, rough-cast, concrete, or blocks. We

DETAIL BY JOHN DAYTON, ARCHITECT.
New Jersey Terra Cotta Company, Makers.

DETAIL.
Executed by New York Architectural Terra Cotta Company.

STORE BUILDING, CHESTNUT STREET, PHILADELPHIA.
Terra Cotta by Conkling-Armstrong Terra Cotta Company.
William Steele & Sons, Architects.

are especially glad to call the attention of our readers to this booklet, because it answers in detail very many questions that have been asked of us. It would be needless to here give a résumé of the contents of the work for a copy will be sent on application. It is perhaps enough to say that the whole subject is adequately covered and the standing of the firm is a guarantee of the reliability of the statements made.

IN GENERAL.

Olof Z. Cervin, architect, formerly of Moline, Ill., has removed his office to Rock Island, Ill.

St. Paul is to have a new twelve-story hotel. The cost is placed at $1,000,000 and the doors are to be thrown open to guests the first of next year. One of the novelties advertised for it are "dust-proof doors."

Putnam & Cox, of Boston, are the architects for the projected $1,000,000 gymnasium for Harvard.

The manager of the Hotel Astor, New York, declares that he will spend $20,000 in devoting 60,000 square feet of the Hotel Astor roof to an airship station, which is to be in readiness May 1st, for the use of aeroplanes and dirigible balloons.

DETAIL BY CHARLES F. WHITTLESEY, ARCHITECT.
Made by Northwestern Terra Cotta Company.

Photographs of the architects were placed beside those of several notable persons in the sealed copper box embedded in the corner-stone of the new chapel at the West Point Military Academy. The setting of this stone took place on April 5th.

President Butler, of Columbia, Seth Low, of the National Civic Federation, or Justice Gaynor is declared acceptable as umpire in the dispute between the carpenters and sheet metal workers of New York City as to

DICKSON BUILDING, NORFOLK, VA.
Built of "Ironclay" brick. Made by Ironclay Brick Company.
Ferguson & Calron, Architects.

which trade has the right to hang the metal doors now used in large buildings.

A bill before the New York legislature provides for the establishment of a state school of sanitary science and public health at Cornell. The provision for extension work by means of reports and bulletins promises to be of material aid to the building industry in putting before it the results of the university's laboratory and research work.

The Park Board of Denver determined April 2d upon the expenditure of about $2,750,000 to complete what is known as the MacMonnies Civic Center. This consists of the parking of a space in the neighborhood of the Capitol grounds, the building of a fountain, and the erection of a museum.

The second annual exhibition of the Portland, Oregon, architectural club was held in the galleries of the museum of fine arts, March 22d to April 10th.

LANDSCAPE PANEL FOR FIREPLACE.
Executed in faience by Rookwood Pottery Company.

In addition to the work exhibited from the offices of Pacific coast architects there was a liberal exhibition of work contributed by eastern architects. The "Year Book," published under the direction of M. A. Vinson, is a notable example of club catalogue work.

The second exhibition of the New Jersey Chapter of the American Institute of Architects was held in the Newark free public library, March 18th to 31st. The catalogue was well up to the standard of those issued in connection with architectural exhibitions. The officers of the chapter are: Charles P. Baldwin, president; Fred W. Wentworth, vice-president; Thomas Cressy, second vice-president; George W. Von Arx, treasurer; Hugh Roberts, secretary.

"Western Colonial" bricks, made by the Western Brick Company, of Danville, Ill., were used in the St. Francis Home for Orphan Boys, Detroit, Mich., Stratton & Baldwin, architects, illustrated in the plate form of this issue.

At the meeting of the Illinois Chapter A.I.A., held April 12th, the Building for the Women's Baptist Home Mission Society, Chicago, Pond & Pond, architects, illustrated in this issue, was awarded the Gold Medal by the Chapter. The body of the building is built of a side cut red paving brick with light gray bricks in the frieze and gables. The bricks were made by the Western Brick Company and furnished by Thomas Moulding Company, their Chicago agents.

DETAIL FOR SCHOOL BUILDING.
Executed in terra cotta by Brick, Terra Cotta & Tile Company.
Henry C. Pelton, Architect.

The interior trimmings in the Natatorium, Phipps Building, Pittsburg, Pa., Grosvenor Atterbury, architect, illustrated in THE BRICKBUILDER for March, were executed in polychrome terra cotta by the Atlantic Terra Cotta Company.

Sayre & Fisher bricks were used in the Home for Aged Men at Scranton, which is illustrated in the plate form of this issue.

The kitchens in the dining hall of the Wheaton Seminary, illustrated in the plate form of this issue, are finshed in white enameled brick made by the American Enameled Brick & Tile Co.

John W. Gates has notified the town council of Port Arthur, Texas, that he will erect a $100,000 hospital there and large business college buildings and dormitories, all of which he will give to the town.

A COMPLETE set of specification blanks for architects and builders has just been published by T. Robert Wieger, architect, Denver, Colo., formerly with Frank E. Kidder, architect and author. The specification fully comprehends all branches of work for all classes of buildings in a brief, concise, and yet complete manner, and is a great help and time saver to architects and builders. The blanks are neatly printed, one side, on bond paper, 6¾ inches by 10¾ inches. The complete set has forty-four pages. These blanks may be obtained from Mr. Wieger in one or more sets, as desired, at a nominal cost.

THE NEW BUILDING ESTIMATOR, *by William Arthur*. A Handbook of Cost Data for Estimating all Classes of Buildings. A practical working guide to figuring the cost of labor and material in building construction, from excavation to finish; with various examples of work presented in detail, and with labor figured chiefly in hours and quantities. A handbook for architects, builders, contractors, appraisers, engineers, superintendents, and draftsmen. With 437 pages, including a 13-page index. Cloth bound. Price, $2.50, delivered. David Williams Company, Publisher, New York.

UNIVERSITY OF PENNSYLVANIA.

THE SCHOOL OF ARCHITECTURE offers full professional training in a FOUR YEAR COURSE leading to the degree of B. S. in Architecture. An option is allowed in ARCHITECTURAL ENGINEERING. The GRADUATE YEAR grants a Master's degree, allowing specialization in advanced work. ADVANCED STANDING is granted to college graduates. Qualified DRAFTSMEN, desiring advanced technical training, are admitted without examination to the TWO YEAR SPECIAL COURSE leading to a Certificate of Proficiency, and technical studies only may be taken by other persons of approved fitness. ILLUSTRATED ANNUAL sent on application. For FULL INFORMATION address

Dr. J. H. Penniman, Dean, College Department,
University of Pennsylvania,
Philadelphia, Pa.

"Recent English Domestic Architecture"

Edited by MERVYN E. MACARTNEY

36 pages of text — **164 pages of illustrations** — **118 photographs of houses** — **67 photographs of interiors** — **58 plans**

The illustrations are accompanied by the plans and in many cases by photographs of the interiors, also by concise descriptive notations on each home.

Bound in strong, green buckram binding, size 8 3-4 in. by 12 1-4 in. Sent on receipt of price. $2.50, express prepaid.

Importer, Dealer Books on Architecture **M. A. VINSON** 205 Caxton Building Cleveland, Ohio

COMPETITION FOR A HOUSE.

To be built of Terra Cotta Hollow Tiles at a cost not exceeding $10,000.

FIRST PRIZE $250., SECOND PRIZE $150., THIRD PRIZE $100.

PROGRAM.

THE problem is a house with walls, floors, and partitions built of Terra Cotta Hollow Tiles.

The cost of the house, exclusive of the land, is not to exceed $10,000.

A detailed statement of costs must accompany each design, this statement to be typewritten on one side only of a sheet of paper measuring 11 inches by 8½ inches.

Designs which in the opinion of the jury call for a house which would cost more than the amount named to execute will not be considered.

The particular object of this Competition is to encourage a study of the possibilities in the use of Terra Cotta Hollow Tiles in the exterior walls of houses. Here is a material which is durable, economical in original cost and construction, desirable in its weatherproof qualities, and one which is capable of meeting the esthetic demands of the designer. Its largely increased use, especially in the eastern section of the country, is evidence of its popularity as a building material which has passed the experimental stage.

The plan should provide accommodations for a family of five — three adults and two children — and two servants. There are no restrictions as to size, shape, or style of house — except the cost — nor the size, shape, or location of lot.

CONSTRUCTION.

While the method of construction for walls, floors, and partitions is to be determined by the designer, the following suggestions are offered as being practicable and admissible.

First. Outside walls may be of Terra Cotta Hollow Tiles eight inches thick (12 inches by 12 inches by 8 inches), the blocks being heavily scored on two sides. Stucco may be used for an outside finish and plaster applied direct to the block for interior finish.

Second. Outside walls may be of Terra Cotta Hollow Tiles ten or twelve inches thick with same finish as suggested above.

Third. The outside walls may be faced with brick, with a backing of eight inch tiles.

Fourth. The outside walls may be built with outer and inner walls, with an air space of two inches between, using in the outside wall a four inch hollow tile, and on the inside a six inch tile. The treatment of the face of such a wall, and the manner of bonding the outer and inner walls are left to the designer.

For the floors, one of the long span hollow tile terra cotta block systems now on the market, which are adapted up to spans of twenty feet without the use of steel beams, or a system which employs hollow tile terra cotta blocks in connection with light steel construction. The roof need not be of fireproof construction.

DRAWINGS REQUIRED.

On one sheet the front and a side elevation at a scale of four feet to the inch; also plans of floors feet to the inch. On another sheet details showing clearly the scheme of construction for the exterior w partitions, together with other details drawn at a scale sufficiently large to show them clearly. Gra all drawings.

The size of each sheet is to be exactly 36 inches by 24 inches. Strong border lines are to be dr one inch from edges, giving a space inside the border lines 34 inches by 22 inches. The sheets are not

All drawings are to be made in black line without wash or color. All sections shown are to be c manner as to clearly indicate the material, and the floor plans are to be blocked in solid.

Each set of drawings is to be signed by a *nom de plume* or device, and accompanying same is to l with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat, or rolled (packaged so as to prevent creasing or crushing THE BRICKBUILDER, 85 Water street, Boston, Mass., on or before June 1, 1909.

Drawings submitted in this Competition are at owner's risk from time they are sent until returned, able care will be exercised in their handling and keeping.

The designs will be judged by three well-known members of the architectural profession.

In making the award the jury will take into account: first, the fitness of the design in an arti materials employed; second, the adaptability of the design as shown by details to the practical constru of burned clay; third, the relative excellence of the design.

The prize drawings are to become the property of THE BRICKBUILDER, and the right is reser exhibit any or all of the others. Those who wish their drawings returned, except the prize drawings, m enclosing in the sealed envelopes containing their names ten cents in stamps.

For the design placed first there will be given a prize of $250.
For the design placed second a prize of $150.
For the design placed third a prize of $100.

In the study of this problem competitors are invited to consult freely with the manufacturers of burned c , fireproofing, or their agents. This Competition is open to everyone.

The prize and mention designs will be published in THE BRICKBUILDER.